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Educational News and Editorial Comment

THE ALL-YEAR SCHOOL IN NEWARK

The following article published in the *New York Sun* describes the close of the discussion, the last stages of which began with a paper presented two years ago by Superintendent David B. Corson of Newark, New Jersey, at the meeting of the Department of Superintendence.

The Newark Board of Education has decided to retain its all-year schools. This step brings to a close an educational war which has been waged in the New Jersey city for the past decade. It is also a direct reversal of the action taken by the same board early last year.

About a year ago the board of education passed resolutions providing for the abolition of the all-year schools on September 1, 1925. This action was so widely and vehemently protested that the board was forced a month later to rescind it. The board decided to place the matter in the hands of an outside and impartial survey committee.

Dr. Wilson Farrand, headmaster of the Newark Academy, and Professor M. V. O'Shea, of the University of Wisconsin, were employed to conduct the survey. Their report distinctly favors the continuation of the all-year school as "extremely valuable" and "not excessive in cost, considering the service rendered."

The conclusions of the surveyors, concurred in by the Newark school authorities, read as follows:

"We recommend, in view of all the evidence, that the all-year schools in Newark be continued and that they be given every facility to make their work even more efficient and effective than it has been thus far. We recommend that a careful study be made of their possibilities with a view to adapting the curriculum more closely to the needs of the pupils and that every effort be made to reduce the administrative difficulties which at present handicap the work of these schools."

Reference is made in the report to the controversy which had arisen in Newark concerning this matter, with teachers and laymen taking sides. In order to obtain impartial data, the board accepted the recommendation of Dr. Farrand and Dr. O'Shea that the co-operation of outside specialists be sought. The report includes facts and conclusions pertaining to the promotion and adjustment of pupils in the all-year schools and the cost of all-year education as determined by Professor W. Carson Ryan, Jr., of Swarthmore College.

Another part of the report presents data and conclusions derived from intelligence tests and educational measurements applied by Professor William A. McCall, of Teachers College, Columbia University.

Dr. Andrew T. Wylie, also of Columbia University, studied and reported on the economic, social, hygienic, and lingual conditions affecting pupils in the all-year schools. In another section of the report are published the findings of Dr. R. K. Atkinson, of the Russell Sage Foundation, as to playground facilities in the all-year schools.

Dr. Farrand and Dr. O'Shea point out that the question submitted by the Newark school board was approached in their study from two entirely different angles. One was an analytical study of the data submitted by the superintendent of schools, while the other consisted of a series of scientific tests and measurements comparing pupils in the all-year schools with pupils in the traditional schools with respect to ability and achievement.

Basing judgment on "a close, critical study of these reports, aided by our own personal observation and investigation," Dr. Farrand and Dr. O'Shea conclude as follows:

"We find that, while the all-year schools do not do what was originally claimed for them, that is, carry any considerable number of their pupils through eight grades in six years, they do advance their pupils more rapidly and give them greater educational attainment than pupils of similar ability, heredity, and social background in the traditional schools. We find that, while it takes the average pupil in an all-year school nearly eight years to complete the elementary grades, it takes the pupils of corresponding capacity in a traditional school a distinctly longer time.

"We find that, while all-year graduates do not make as good a showing in high school as do traditional graduates, the reason is not less efficient work in the schools but the innate capacity of the pupils themselves and the fact that the all-year schools are holding and carrying through a class of pupils who in the regular schools would be likely either to drop out or to be seriously retarded.

We find that these schools, in the face of great difficulties, are doing extremely valuable work and are rendering great service, particularly to children of foreign parentage and unfavorable home conditions, and that these children will suffer educationally if the all-year schools are abolished. We find that the additional cost is not excessive, considering the service rendered."

CITIZENS' SAMPLING DAY

The following statement is quoted from the *Christian Science Monitor*.

Time-honored rules of school examinations were reversed in a new type of test given in Chicago recently under the direction of William McAndrew, superintendent of schools. Children were examined in a central downtown hall. Laymen, not teachers, gave the test. Questions were based not on the school curriculum but on what the public expects an eighth-grade graduate to know. The results were used not to grade the pupils but to help school principals to gauge the success of their work.

"Citizens' Sampling Day," as the innovation is called, proved so successful that a second sampling day is to be held in June. Its purpose, as explained in the superintendent's announcement, is to enable principals "to learn much of value by observing how their human output meets requirements proposed by customers." Further describing the test, the superintendent wrote:

"Here, now, are children selected by lot from schools chosen haphazard. An assortment of citizens who admit themselves to be of average intelligence has proposed a series of tasks which eight years of schooling are thought to have enabled these youngsters to perform. From this we may learn much, both as to the expectations of some citizens and as to the abilities of some children. It is not a show-off."

Indeed, precautions were taken to keep conditions as normal as possible. Applause was forbidden. Competition was avoided so far as possible. Appraisers were chosen from a group of representative citizens invited to this intimate circle, from which the press was excluded. The tests covered subjects varying from arithmetic to politeness, from literary taste to the ability to use a saw. Prominent Chicago citizens, among them a well-known lawyer, a leading business man, a distinguished social worker, and other public officials and heads of civic groups proposed and asked the questions.

The business manager of a large institution gave the arithmetic test by asking the children to add a bank-deposit slip. A citizen who believed that every public-school graduate should be able to use tools asked the boys to mend a screen. Another lay examiner set about to ascertain whether the children really knew how to use the alphabet by asking them to look up various firm names in the telephone directory. Carl B. Roden, librarian of the Chicago Public Library, proposed a card-catalogue hunt for a given fact: "What actuated John Quincy Adams in his public life?" The head of a large civic organization tested the

children on their ability to listen well by asking them to select the most important parts of a speech given by another citizen.

An examination requiring well-developed judgment and an understanding of what constitutes citizenship was given by G. B. Stephenson, boy-scout executive of the Chicago district. Five citizens were described, with their qualities itemized. "Rate them according to your estimate of good citizenship," the children were told. It was not an easy choice offered among "John Jones, who votes at every election, pays his taxes, never goes on a hike with his son, never visits school, and has lots of money; Thomas Hall, who is president of a large bank, a good speaker at banquets, and had his son exempted from military service; and Hal Hunter, who takes boys on hikes, urges them to attend their churches, is a good baseball umpire, and has the finest flower garden on the street."

A test in good manners was simple and searching. "A lady and gentleman are guests in your house and are unacquainted. Make the presentation."

To stand and sing without hesitation such simple music as "The Minstrel Boy" without leaning on the voices of the rest of the class is an ability which every one of our public-school graduates should possess, declared Frederick A. Stock, conductor of the Chicago Symphony Orchestra, who gave the test in reading music. Literary taste was measured by Keith Preston, a writer of light verse, who asked the pupils to choose the best among four stanzas, presumably unfamiliar to the children.

In all, twenty-five tests were given. The purpose apparently was that of many projects put forth by Chicago's energetic school chief, namely, to give everyone concerned a fresh angle for study.

"The workman learns much from the product of his fellows and returns to his labor with renewed interest," was his significant comment on the set of questions.

EDUCATIONAL RESEARCH BY TEACHERS

An article in a recent issue of the London *Times Educational Supplement* deplores the lack of adequate agencies for carrying on educational research. After pointing out the relatively small amount of research in educational psychology, the article discusses the possibilities as follows:

There is more of the unknown in applied education than in any other branch of knowledge; the details of teaching are mysteries; the problems of learning are unsolved riddles. How should a child be taught to add—upward or downward? Should problems be imaginative and richly clothed in words or should they contain as few words as possible? Almost every detail that at present we consider a matter of opinion requires investigation through research. How should poetry be presented to children of different ages—auditorially or visually? Are twenty repetitions of a piece that is to be memorized any more

effective for learning and retention purposes than are five repetitions? The conditions of improvement in habits and learning have never received experimental examination. We are in the position of the medieval physicists—ignorant, with everything to be done.

The author proceeds from this point to argue that the numerous researches which are needed can be made only by enlisting the teachers and turning the classrooms into research laboratories. He finds his solution of the problem supported in some measure by the example of America. He appeals to the American example and elaborates his plan as follows:

> In America many of the larger cities or districts have bureaus and centers of research for educational problems, and, while these bureaus are not expressly for teachers, the bodies responsible for their establishment are already seeing the need of providing for the training and guidance of teachers. It would be a natural step for the student from the diploma course to continue educational activities by taking part in the work of such a bureau. An ideal research bureau would be a center where guidance, collective help, references, publications, and suggestions for research could be obtained. It would be centered in a training college. All our universities are situated in thickly-populated areas, and many normal students obtain teaching posts that are within easy access of the university. A convenient library of educational works should be at hand, and the college library could be used. A committee, with experts in psychology, teachers of experience, and university and training-college professors and lecturers as members, would act in advisory and administrative capacities. From one member or the other or from special subcommittees, the teacher could seek guidance; a bulletin of research problems would be issued periodically by this committee, and it would effect publication of research results and institute collective researches.

Such a plan is certainly worthy of serious consideration. However, it involves certain elements which cannot be overlooked. Vigorous scientific attack on educational problems means the expenditure of energy. If energy is to be available for this purpose, it must be provided by the public, which is to profit through research. At the present time boards of education and the public do not recognize the importance of continuous research in order to keep the educational system at a high level of efficiency. Research and certain very essential phases of central supervision are limited by the fact that the public is willing to have the schools move along traditional lines and makes little or no demand for innovation. Under such con-

ditions teachers will be very slow to follow the plan suggested by the writer quoted, but public complacence is certainly no adequate justification for inaction on the part of teachers. Perhaps the most promising suggestion is that concrete examples of school improvement supplied to the public by voluntary work on the part of teachers will do more than anything else to bring the kind of support necessary for a change in the whole situation.

AN ELEMENTARY-SCHOOL LIBRARY

It is becoming increasingly common for elementary schools to instal libraries. The following description of what has been accomplished in one of the elementary schools of Baltimore was prepared by Adelè Talbott and was published in the *Baltimore Bulletin of Education.*

Is there an elementary school today where there is not a positive need for a library—not a few books of fiction placed in some designated room, but a library, in which are found the better books in all fields of human experience, carefully organized to serve the needs of the entire school?

In its second year, School No. 69 is fortunate in having as a part of its organization a library which is making a vital and systematic contact with the children of all the grades. In the construction of the new building, a room was designated for this purpose, but it has taken the combined efforts of the patrons and teachers to furnish this room appropriately, to select carefully the abundant reading material needed, and to formulate plans for the satisfactory functioning of the library each school day.

The interest of the Parent-Teacher Association has been centered on this undertaking, and much time, effort, and money has been expended in its development. A library committee of this assoication, composed of two parents and two teachers, has given much time and thought to it and, with a vision of the goal, has steadily pressed onward to reach it.

Low, open-wall shelving, placed at convenient heights for children to reach, was first provided; movable, low, open bookcases, providing adequately for picture and story books for little children, were made; tables and chairs were changed to the proper heights for various sizes of children; bulletin boards, where attractive pictures and interesting data could be found, were placed at the desired heights. The walls were necessarily re-tinted. To add charm and color to this environment, draperies, rugs, and pictures were selected to harmonize with the predominating tone.

The committee has been most careful in the purchase of books. Selections have been made from lists of children's books recommended by the American Library Association and by groups of people working directly with children.

About 650 books are now on the shelves, with more to be catalogued, classified, marked, and stamped.

Picture books; myths and legends; and books of animals, birds, nature, travel, adventure, geography, history, biography, and fiction are there. The *International Encyclopedia* and *The World Book* are among the selections. Special attention has been given to the edition bought, to its print, its illustrations, and its possible durability. The recommendations in the course of study have been followed in placing on the shelves many of these books for the use of children and teachers.

The Dewey decimal system, recommended by the general chairman of public-school libraries, is used for the classification of the books, thereby training teachers and children in the system most universally used.

This library needs the services of a full-time trained librarian, a seeming impossibility in an elementary school at this time. However, through the efforts of the chairman of the committee, the help of a trained librarian has been available many times. She has systematically organized the library, has catalogued and classified books, and has trained others in this work. By the arrangement of classroom programs, a teacher is in the library at other times.

The library is a great attraction, drawing to itself the little children who spend happy moments around the low table, looking at picture books, examining the bulletin boards, or admiring the fresh flowers. It is bringing to the older children a greater companionship with books.

The library is one phase of one attempt to deal with the child as a human being to be developed by freedom rather than by compulsion.

THE CIRCULATING LIBRARY IN COWLEY COUNTY, KANSAS

There is no more wholesome enlargement of the school curriculum than that which is accomplished by the substitution of library methods for the narrow study of a single textbook in each subject. The fact that comparatively few books are to be found in rural schools is undoubtedly due primarily to the difficulties involved in securing books. In a recent issue of the *Techne*, a publication of the Kansas State Teachers College, Pittsburg, Kansas, Carrie Carlisle, county superintendent of schools, describes as follows the way in which Cowley County, Kansas, supplies books to its rural schools.

In our county we have found a place for the circulating library. Many rural schools had few or no books suited to the daily needs of the pupils; other schools having books often desired something different, a change. Another great need appeared in the case of supplementary readers. It is not sufficient that the first-, second-, and third-grade pupils read only one reader a year; they should read several. Who was to supply these extra readers? The parents often could not; the school officers would not; hence our circulating library.

During the war the Cowley County Teachers' Association purchased a hundred-dollar liberty bond. In 1923 they voted to donate this bond for the purpose of establishing a circulating library, provided that the school officers of the 140 districts would match it dollar for dollar. This challenge was accepted at the next regular meeting of the school officers. When the school officers adopted a constitution, they voted to pay annual dues of three dollars each, one dollar for the benefit of the circulating library, one for the annual spring contests, and one to create a general fund to be used at the pleasure of the association.

This plan has been very successful. The majority of the school boards immediately greeted it with favor; others are doing so as they see the use the teachers and pupils make of the five hundred books. Of course, every book coming to the office as a complimentary copy is catalogued for distribution. A special book is arranged with a double page for every district in the county. The teachers or anyone from a district can check out books, recording the numbers and the date on their special page. They may keep these books three or four weeks, marking the date of their return on the same page.

In checking out supplementary readers, either in sets or separately, the teachers are urged to choose books one grade below the standing of the pupils in order that the pupils may not only learn to read fluently but learn to love to read. The teachers are finding these books and the library in general a great factor in the advancement of the pupils.

PLATOON SCHOOLS IN BIRMINGHAM, ALABAMA

The Board of Education of Birmingham, Alabama, has published a pamphlet of thirty-eight pages under the title, *Platoon Schools in Birmingham, Alabama*, which describes in detail the daily program, the equipment, and other features of the platoon schools in that city.

One of the sections in the pamphlet which is likely to be of most general interest is entitled, "The Birmingham Test." This section is as follows:

The value of this specialized instruction was demonstrated in a study recently made by the Department of Research of the Birmingham Public Schools.

Two groups of children in Grades IV to VIII were selected, one from several non-platoon schools, the other from several platoon schools. These children were equal in ability to learn, in the amount of learning already acquired, in intellectual maturity, and in the number of days in attendance during the period of the investigation. On December 15 they were measured by standardized tests in arithmetic, reading, history, literature, language, geography, and spelling for the amount of learning they had acquired up to that time. Four months later they were measured again by tests of equal difficulty to see how much they had gained in all these subjects during the four-month period.

This study, summarized in the following table, shows that, while the average pupil in the non-platoon schools made a gain of nearly 51 points in his score, the average pupil in the platoon schools, during the same period, made a gain of almost 66 points, or 29.7 per cent more than the one in the other type of school. The amount of this gain is such that, according to the experiences of the best authorities in educational measurements, should the investigation be repeated an infinite number of times, the chances are twenty to one that there would be a substantial difference in favor of the platoon schools.

SUMMARY OF THE RESULTS OF A STUDY OF THE AMOUNT OF LEARNING ACQUIRED BY TWO EQUAL GROUPS, ONE FROM PLATOON SCHOOLS, THE OTHER FROM NON-PLATOON SCHOOLS

Subject	Gains from December to May		Excess of Platoon Schools	Percentage of Excess
	Platoon Schools	Non-Platoon Schools		
Reading	21.4705	16.0365	5.4340	33.9
Arithmetic	23.5295	15.6705	7.8590	50.2
History	4.2645	2.9375	1.3270	45.2
Science	6.9115	6.8900	0.0215	0.3
Language	2.6470	3.4755	−0.8285	−23.8
Spelling	8.9705	7.8660	1.1045	14.0
Total	65.8825	50.7925	15.0900	29.7

THE TEACHER'S JURISDICTION IN CONNECTICUT

A school teacher in Connecticut has the right to punish a pupil for an offense committed at home, according to a ruling by the Supreme Court of Errors of that state in the case of *O'Rourke* vs. *Walker*, disallowing a claim for damages made by a boy against his teacher. The facts of the case showed that one James O'Rourke went to his own yard after school had been dismissed and, with other boys of his age, engaged in the youthful pastime of annoying schoolgirls as they passed. When the girls complained the next day to the teacher, Julia Walker, she administered light corporal punishment by striking the boy across the hand with a ruler.

Through his mother, the boy sued for damages for assault on the ground that the authority of the teacher did not extend beyond the schoolyard and that no rule could be adopted which attempted to regulate the conduct of pupils after they reached their homes. The claim was overruled by the lower court, and the case was appealed to the Supreme Court of Errors. Justice Keeler, writing the opinion,

upheld the ruling of the lower court, saying that the true test for determining the teacher's right and jurisdiction to punish for offenses committed by the pupils is "not the time or place of the offense but its effect on the morale and efficiency of the school, whether it, in fact, is detrimental to its good order and to the welfare and advancement of the pupils therein." The justice said that to uphold the contention of the plaintiff would result in a serious loss of discipline in the school and in possible harm to innocent pupils. The harm done is the same whether the offense is committed within the confines of the plaintiff's own yard or outside of it. In either event, the result is that the injured and frightened pupils "are dismayed and discouraged in going to and coming from school and are demoralized while in attendance."

CIVIC TRAINING IN LINCOLN, NEBRASKA

A pamphlet published by the public-school system of Lincoln, Nebraska, under the title, *Civic Education in the Lincoln Schools*, contains a report in which the superintendent gives an account of the devices used in the schools of that city to develop civic consciousness in the pupils of the various grades. The underlying principle which guided the organization of the various types of activity is stated in the following paragraph.

> It used to be said that the purpose of the schools is to prepare boys and girls to become "future citizens." Today pupils are not regarded merely as future citizens. They are citizens here and now, with civic interests and civic problems and civic responsibilities. Many of these civic interests and problems and responsibilities are a part of the life of the school; in many ways the pupils' participation in the larger life of the community is just as real and has for them an interest just as vital as in the case of the adult. Training for future citizenship placed emphasis on qualities of character which it was believed would function later in civic life but gave little thought to making those qualities function during the training period. Likewise, the informational content of civic instruction, in so far as there was any such instruction, was related to what the child might need to know when he became a voter rather than to those problems which were a part of his life as a child. Today civic training is concerned first of all with the civic life of the child, and, out of the situations and problems which arise, it seeks to develop civic attitudes of mind and civic habits of action. It makes use of an abundance of civic information in order that these attitudes and habits may have a rational basis but not primarily in order that such information may be stored away for future use. To what extent these habits and

attitudes will be carried over into adult life it is impossible to say. There is, however, reason to believe that this type of civic training is more likely to function in adult life than is any other type of civic training.

The remainder of the pamphlet is devoted to concrete descriptions of civic projects, which organizers of school programs will find suggestive.

WORKERS' SCHOOLS

Adult education as organized by the labor unions is increasing in scope and in the number of centers in which it is provided. Its purpose is to supply laboring people with the training which will make them more efficient and also to counteract any tendencies which may have appeared in educational institutions as a result of capitalistic influences.

The following statement is given out from the headquarters of this movement.

During the past six months there has been a most encouraging development of the workers' educational movement in this country, according to reports submitted to the Executive Committee of the Workers' Education Bureau at its semiannual meeting. The number of centers for workers' education has increased to such an extent that the bureau now represents a federation of more than 525 national and international unions, state federations of labor, local unions, and workers' educational enterprises. In Wyoming alone more than four hundred students were enrolled in classes started last fall. New educational directors have been appointed in Oregon, Pennsylvania, and Wyoming.

In speaking of the movement, Matthew Woll, vice-president of the American Federation of Labor, said:

"With the technical advances in modern industry, it is inevitable that the workday in industry will become increasingly shorter and wage-earners will be faced with the problem of the wise use of their leisure time. Mere amusement will not satisfy workingmen and women who seek to appease the cultural hunger of their lives. They are reaching out to possess an understanding of the whole heritage of the past and present. We must aid them.

"Already more than three hundred college and university professors have joined hands with workingmen in these study groups in forty states of the Union. The importance of this adventure in workers' education can hardly be overemphasized in our industrial society. In Europe as well, our work is finding wider appreciation through our participation in educational conferences and summer schools."

The sessions of the committee were devoted to the development of plans for extending provisions for education to a larger number of wage-earners

through the establishment of special institutes or fact-finding councils which would aim to reveal the economic problems that face the various groups in this country. Plans were considered for raising a permanent endowment fund to promote workers' education in the United States.

DEAF PUPILS AND THEIR MANAGEMENT

The following statement appeared in a recent issue of the *New York Times*.

A recent health survey reveals that 5 per cent of the public-school children of New York City suffer from deafness. Physicians who have studied the situation assert that the presence of so many deaf or partly deaf pupils in the classrooms slows down the work and handicaps the normal children. A similar survey made in Chicago showed that among three hundred thousand children examined almost 10 per cent had defective hearing. It has been estimated that about a million children now attending the public schools throughout the country are troubled in this way.

Twenty states have passed laws requiring that children shall be examined at least once a year to ascertain whether their hearing is such that they are receiving the full benefit of school instruction.

A generation or less ago the presence of a deaf student in the classroom was disregarded. Today, when the average classroom is crowded, the delays caused by students who are "hard of hearing" retards the work of the class, and remedial measures have been undertaken not only for the sake of increasing sound hearing but to eliminate hindrance to class proficiency.

When audition is imperfect, the instruction must be repeated. If the entire class must wait on the slower perception of the partly deaf, it is estimated that 95 per cent of the students are held back by the 5 per cent who cannot keep up with the general movement. It is pointed out that the subnormal 5 per cent also suffer from being associated with the normal.

In small country classrooms, the handicapped pupil may be assigned a front seat, near the teacher, and, if the teacher is considerate, his disadvantage is thus overcome. In large city schoolrooms, the teacher cannot give individual attention to pupils who cannot hear well without neglecting the majority. If there is no regular medical examination, the teacher may be ignorant of a pupil's aural deficiency. It frequently happens, especially in city schools, that children fall behind in their work and are considered dull and inefficient when the difficulty is entirely due to poor hearing and not to poor mentality.

Out of the total number of teaching hours for a city, the loss of time from the slackened pace made necessary by pupils whose perceptions are not keen amounts to so much that the cost in extra teachers is considerable. Many physicians therefore urge that it would be cheaper for New York City to provide special schools or classes for the partly deaf than to permit them to study with normal children and delay the general advance of the class.

The records of schools for the deaf show that, even when they are separated from normal children, the progress of deaf or partly deaf children is comparatively slow. Deaf children often graduate at a much later age than do those of sound hearing. The deaf child of sixteen or seventeen years of age, it is said, compares with the normal child of thirteen or fourteen years. Few reach high school; still fewer go to college.

A large proportion of the children classified as deaf or partly deaf may have their hearing improved by medical attention. The advance in the knowledge with regard to the ear has been remarkable in recent years; more has been learned of the diseases of the ear and of their treatment in the past decade than in the hundred years preceding.

Those who cannot be cured are taught lip-reading. A course in lip-reading will often place the partly deaf on equal terms with normal children in a classroom. Lip-reading has been introduced in many private schools and is being introduced in the public schools of many states.

Ear specialists point out that it is important that an intelligent and sympathetic examination be made of children before they are removed from the public schools to special classes for the teaching of the deaf. It is now possible to cure or relieve 50 per cent of the cases which were heretofore thought hopeless. It is a mistake, they point out, to send all deaf children to deaf schools, where they may acquire the habits of the deaf, for, on going out into the world, they will not be prepared to mingle either with normal people or with the totally deaf.

HEALTH HEROES

As a part of its campaign for the improvement of health, the Metropolitan Life Insurance Company is issuing a series of attractive pamphlets under the title, *Health Heroes*. These pamphlets give accounts of the lives and scientific investigations of men who have contributed to human betterment by making discoveries and organing movements which lead to the improvement of health. The first two pamphlets of the series deal with Louis Pasteur and Edward Livingston Trudeau. The pamphlets, which make excellent supplementary reading, can be secured by addressing the offices of the company in New York, San Francisco, or Ottawa.

SUMMARY OF READING INVESTIGATIONS (JULY 1, 1924, TO JUNE 30, 1925). III

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RELATION OF INTELLIGENCE TO ACHIEVEMENT TYPES OF CLASS ORGANIZATION

Relation between intelligence and reading achievement.—Two investigations confirm a fact revealed by earlier studies, namely, that there is a positive correlation between intelligence and reading achievement. MacGillivray (37) gave the Chicago Group Intelligence Test and Reading Tests I and II prepared by Luther Case to ninety-one high-school pupils. The correlation between intelligence and reading achievement as measured by both Tests I and II was .42.

Dickinson (15) gave the "Cross Out" Intelligence Test, Schedule E, from Indiana University, the Thorndike-McCall Silent Reading Scale, and the Thorndike Visual Vocabulary Scale A2, X Series, to 149 ninth-grade pupils. The correlation between the scores made on the "Cross Out" Intelligence Test and the scores made on the Thorndike Visual Vocabulary Scale was .631 ± .031; between the scores on the "Cross Out" Intelligence Test and the scores on the Thorndike-McCall Silent Reading Scale, .649 ± .032; between the scores on the Thorndike-McCall Silent Reading Scale and the scores on the Thorndike Visual Vocabulary Scale, .763 ± .026.

Reading achievement as related to chronological age and to mental age.—Brooks (7) gave silent-reading tests to 44 fourth-grade pupils, 42 fifth-grade pupils, 55 sixth-grade pupils, and 108 seventh-grade pupils. Through the use of the Pearson product-moment formula, he found that the correlation between reading achievement and chronological age was negative more frequently than it was positive. This finding differs somewhat from the findings reported in the monograph, *Summary of Investigations Relating to Reading*. Positive correlation was found between reading achievement and mental age. The coefficients varied from .462 in the case of rate of reading, as

measured by the Monroe Standardized Silent Reading Test, to .774 in the case of comprehension, as measured by the Courtis Silent Reading Test No. 2.

Partial coefficients of correlation were also determined. When mental age was held constant, it was found that the relation between reading achievement and chronological age varied from −.152 to .184, the partial coefficients averaging −.013. When chronological age was held constant, the relation between reading achievement and mental age varied from .391 to .773, the average of the partial coefficients being .595. Other factors which Brooks believes should be measured, or estimated and adequately allowed for, or held constant are "(1) interest and effort of pupils, (2) methods of teaching, (3) quality of instruction, (4) time devoted to reading, (5) amount of material read, etc."

Relation between mental age and achievement in school subjects.—Van Wagenen (**64**) compared the school achievement of 101 sixth-grade pupils with mental ages of eleven years and three months or less with the school achievement of 93 pupils of the same grade with mental ages of fourteen years and three months or more. The Terman Group Intelligence Test was used in determining the mental ages, and the following tests were used in measuring school achievement: an unpublished spelling scale, the Thorndike-McCall Silent Reading Scale, the Van Wagenen American history scale, the Posey-Van Wagenen Geography Scale, and modified forms of the Woody Arithmetic Scale and the Buckingham Scale for Problems in Arithmetic.

The study indicated that the work of the brighter pupils was just as good as the work of the duller pupils or even better. In the thought phases of geography, however, the quality of the work of the brighter pupils was in no instance as good as that of the pupils of the lower mental-age group. Van Wagenen believes that other factors might account for the poorer quality of the work of the brighter pupils in this case. Among the possible factors are the brighter pupils' "mental retardation in the grades" and either "instructional neglect of the brighter pupils in mixed classes" or "an enriched curriculum of simple materials instead of materials sufficiently difficult and interesting to challenge their best efforts" (**64**: 192).

Variability in the reading achievement of pupils of the same mental-age level.—In 1923 Torgerson and Shuman gave the Thorndike-McCall Silent Reading Scale, Form 1, to 216 pupils of the mental age of twelve. The intelligence quotients of the pupils ranged from 72 to 136. When the pupils were grouped on the basis of their intelligence quotients, it was found that the average reading-accomplishment quotients of some of the groups having low I.Q.'s were higher than those of groups having high I.Q.'s. One explanation offered for this inverse relation was inequality of educational opportunities. For example, "a pupil in the fourth grade with sixth-grade ability whose only opportunity is the study of fourth-grade subject matter cannot hope to raise his educational age to a sixth-grade level unless he is brought in contact with sixth-grade material" (61: 134).

In order to test the validity of this explanation, the authors considered the accomplishment quotients of only the pupils with mental ages of twelve who were in Grades V A–VII B, inclusive. This reduced the number of cases to 123. When these pupils were divided into groups on the basis of their intelligence quotients, it was found that "among pupils of the same mental age, those having the highest I.Q. read better than those of a lower I.Q." (61: 134). The problem was studied still further by giving the Stanford Achievement Test to 112 pupils in the fifth and sixth grades whose mental ages were between eleven years and eleven years and eleven months. When these pupils were grouped on the basis of their intelligence quotients, the middle group surpassed the lowest group by 2.4 points in average accomplishment quotient. On the other hand, the highest group was 3.3 points below the middle group. The authors were unable to account for the deficiency of the superior group but suggested three possible explanations: "(1) more remedial work and resulting pressure with the slow group; (2) greater absence of stimuli for the superior pupils to do their best;" and (3) the smaller number of cases (19) in the superior group as compared with the number (45) in the lowest group (61: 136).

The general conclusion of the study, as stated by the authors, is that, while the data are not conclusive, "they present considerable evidence to support the contention that the accomplishment of pupils of the same mental age who are given the same opportunity for

learning will, in general, vary in direct ratio with the intelligence quotient. The data show further that pupils with high intelligence quotients have low accomplishment quotients, if they are required to work in grades below their mental level. This suggests the importance of proper grading and classification" (61: 136).

Result of using similar methods of teaching pupils of different levels of intelligence.—Averill and Mueller (2) carried on an experiment to determine the relation between size of class and reading efficiency. Two sections, one of twenty-six pupils and the other of twelve pupils, were organized. "The general procedure was to place two pupils of approximately equal intelligence scores in the larger group for every one with the same score in the smaller group." The two groups were instructed by one teacher, who used the same methods in both sections. Forms of the Thorndike-McCall Silent Reading Scale were used in September and in the following January to determine the progress of each section. The results showed that a large percentage of the pupils in the smaller section made substantial gains. The study is not conclusive, however, because the same methods were used in teaching both classes. It is possible that different methods should be used in teaching classes which vary greatly in size.

An analysis of the progress of the individual pupils in each section revealed very significant facts concerning the value of using the same methods of teaching pupils who differ in capacity. The findings of the authors are as follows:

> It is a significant revelation of the study that in both classes the majority of those pupils who failed to achieve their A.Q. prediction had I.Q.'s ranging from 92 to 110 and could be classified, therefore, as of average intelligence. In the larger class, of those thus failing, 76.9 per cent had I.Q.'s of 98 or higher, while only 23.1 per cent had I.Q.'s below 98. In the smaller class, 60 per cent of those failing to achieve their A.Q. prediction had I.Q.'s of 92 or higher, while 40 per cent had I.Q.'s below 86. Equally significant is the fact that the majority of those in the larger class who exceeded their A.Q. prediction had I.Q.'s below 90 (54–89), while 28.6 per cent of those corresponding in the smaller class had I.Q.'s below 90 (66–82). In other words, in both classes, notably in the larger class, failure to meet A.Q. prediction was found to be associated with high I.Q. [2: 690]

The explanation suggested by the authors is that "the teacher devoted disproportionate energy and attention to urging the duller,

slower pupils forward, while those naturally brighter and keener were permitted to progress not only at a much slower rate than they were capable of maintaining but at a rate relatively much slower than that maintained by the more meagerly endowed children. This is in accord with the practice of most teachers of permitting the most capable pupils to lag while those who are least capable are urged forward at somewhere near their maximum rate" (2: 690).

Value of independent silent reading versus value of formal intensive instruction.—In 1921 Zirbes (73: 4) divided a second-grade class into two sections of approximately equal size. "The pupils of the one section were matched or paired with those of the other section in chronological age, Binet mental age, and reading ability as represented by a composite score on several informal reading tests, the Gray Oral Reading Test, and the Courtis Silent Reading Test." During a period of six weeks one group received "carefully planned formal and intensive instruction" in reading. "Extensive, silent, and informal reading experience" was provided for the other section. The pupils of the latter section were given the opportunity to choose the materials which they read. The teacher also supervised their reading each day, giving to each child such help or encouragement as was needed. The purpose of the experiment was to determine the relative merits of the two types of reading activities "when the time and other factors were as nearly constant as possible and when each was at its best." Records were kept of the daily progress of the pupils. At the end of two months both groups were retested. An analysis of the descriptive records and a comparison of the test scores revealed the following facts.

The average growth in reading ability was almost identical in both groups, but the upper part of the group which had extensive individual silent-reading experiences showed more improvement or growth than the upper part of the group which had formal instruction. The lower ranges of ability in the informal extensive group evidenced less growth than that registered by the pupils in the lower end of the formal-instruction group. There was indeed a sharp division which seemed to indicate that extensive silent reading of new material is neither very interesting nor profitable to pupils who read less than sixty words per minute orally and who make two or more serious errors per minute or meet with as many difficulties in which they require help.

Conversely, the pupils who read more than sixty words per minute orally with infrequent errors and comparative independence seemed to be retarded by

instruction and gained more from extensive reading experiences. While intensive reading experiences, i.e., review or re-reading, were especially valuable in the case of children of slow rate and low ability, they were neither as valuable nor as interesting to children who had passed a certain minimal ability. When children with inadequate ability were merely provided with opportunities to do silent reading without appropriate instruction and supervision, they frequently acquired bad reading habits and attitudes. In cases of marked reading disability pupils resorted to protective camouflage or evasion, or to counterfeit activities like memorizing, inventing tales from the pictures in a book, or daydreaming while gazing into an open book [73: 5].

Relative merits of enrichment of course and rapid advancement in the case of bright pupils.—Saunders (52) selected the 60 brightest pupils of 320 pupils in five neighboring schools at the time of their promotion in September, 1920, to the sixth grade of the Binford School, Richmond, Virginia. The general mental ability of these sixty pupils was determined through the use of the Chicago Group Intelligence Test. The pupils were also tested in October, 1920, and in January and May, 1921, with the Trabue Language Completion Test, the Monroe Standardized Silent Reading Test, the Thorndike Visual Vocabulary Scale, and comparable forms of standardized tests in reasoning in arithmetic and in information in United States history and in geography. Other tests and scales were used once or twice during the year.

The pupils were divided into two equal groups on the basis of their intelligence scores. "The first group, designated as Group A3, was permitted to make as rapid progress as possible in following exactly the required course of study. The members of this group did the work of three semesters, and twenty of the twenty-two pupils remaining in the class in June, 1921, were promoted to the upper seventh grade. . . . . The second group, designated as Group A4, was not allowed to exceed the limits of the prescribed course of study but was given an enriched course in English, arithmetic, history, and geography."

When the two groups were compared in January and in May, 1921, on the basis of the scores made on the Monroe Standardized Silent Reading Test, it was found that the enrichment group had gained 17 points in rate and 5.5 points in comprehension while the rapid-advancement group had remained stationary in rate and had

gained only 1.5 points in comprehension. "While the gain was greater in the enrichment group, the rapid progress group stood higher at the beginning and at the end of the semester."

Saunders presented the following tentative conclusions for the study as a whole.

> Both enrichment of the course and the opportunity to progress more rapidly than the normal rate are needed. Each of these special groups gained and each lost by the method of treatment. The rapid-advancement group gained a half-year in time and in the amount of information assimilated but failed to make as great a gain in the power to reason as did the other group. The enrichment group made greater gains in the power to reason and in language ability but made no gain in time. It seems clearly indicated, therefore, that both the methods of treatment used are highly desirable for bright pupils [**52**: 23].

THE MERITS OF DIFFERENT METHODS OF TEACHING BEGINNING READING

Relative merits of three methods of teaching beginning reading.—Winch (**70**) reported in detail the results of observations and experiments made in England between 1905 and 1924 to determine the relative merits of different methods of teaching beginning reading.

In order to secure groups of pupils who were equal in their ability to learn to read, Winch organized a series of teaching and testing exercises. "The object was to discover whether children of this age (between five years and five years and six months) and ability could perceive, discriminate, and associate shapes and sounds which were new to them and remember them over a period of time." Through the use of these exercises, Winch selected "equal, parallel, and highly correlated groups" for each of his experiments. An apparent weakness of this method of selecting groups is that only a limited number of prerequisites to rapid progress in learning to read are considered.

The first experiment compared the progress of two groups of pupils (nineteen pupils in each group) who received instruction from September 8 to October 21, the one group by a highly phonetic method and the other by a look-and-say method. The instruction given to each group was exceedingly formal. At the end of the experiment four informal tests were given to each pupil. Some of the sentences were familiar to the pupils; other sentences were new. Ballard's One-Minute Reading Test was also given. So far as accuracy was

concerned, the results of the tests were distinctly favorable to the phonetic group. The look-and-say group, however, read more rapidly in the informal reading tests than did the phonetic group. It should be remembered that no tests of comprehension were given and that no study was made of the effect of the particular methods on the pupils' attitude toward reading.

When the progress of a group taught by a phonetic method was compared with the progress of a group taught by an alphabetic method, the results were favorable to the former. Similarly, a group taught by the Hayes phonoscript method made more rapid progress than a group taught "with an ordinary phonetic system." Since phonoscript "involves modifying marks in or on ordinary literal symbols," it did not prove as helpful in learning to spell as did the phonetic system, which did not use such marks. The study showed also that the children who were taught by the phonoscript method encountered serious loss when required to read from ordinary print. This loss was checked by an experiment with another class and found to be appreciable. Even after eighteen months, it was still "statistically significant, though much reduced." Final tests were given to two groups two years after the pupils had been taught to read, the one by the phonoscript method and the other by a regular phonetic method. Three tests were used, including passages from *Alice's Adventures in Wonderland*, passages from a phonoscript reader, and passages from a phonetic reader. The results were favorable to the phonoscript group. It should be remembered, however, that the accomplishment of the pupils was determined entirely on the basis of the accuracy of their pronunciation.

Winch interpreted the results of his experiments as completely justifying the use of a phonetic method involving phonoscript. Inasmuch as his tests of accomplishment were limited almost entirely to accuracy of pronunciation, his conclusions cannot be accepted as final. Studies made in this country show conclusively that different methods of teaching beginning reading develop various attitudes and habits on the part of pupils. Before the merits of any system can be definitely determined, progress in all the essential reading attitudes and habits must be measured.

READING AND VOCABULARY STUDIES IN ARITHMETIC

Vocabulary frequencies in arithmetic.—In order to study the vocabulary difficulties of arithmetic textbooks, Turner (62) made a record of the frequency of each word used in a series of arithmetic texts for Grades III–VI, inclusive. He found a total of 1,286 words used in the texts and a range in frequency from 1 to 124 in the third-grade textbook and from 1 to 296 in the sixth-grade textbook. Of the 1,286 words included in the books examined, 658 occurred five times or less. Turner then determined the number of words occurring in the textbook for each grade not found in the textbook for the immediately preceding grade, the number not found in the textbook for the immediately succeeding grade, and the number not found in the textbook for any other grade. The number of words occurring in the textbook for a given grade not found in the textbook for any other grade ranged from 26 words in the case of Grade IV to 290 words in the case of Grade VI. Some of the important conclusions follow: "When a new word appeared, it was usually repeated many times within two or three pages and then probably never used again. . . . . Many words were dropped and not used in the next higher grade. . . . . Many new words were added with each new book. . . . . Many words were found to have a special meaning for arithmetic" (62: 294).

Nature of vocabulary difficulties in arithmetic.—Monmouth and others (41) took three steps in studying the difficulties presented by technical words and phrases in arithmetic problems. They first secured from twenty-five teachers a total of 1,250 words which, in their opinion, caused difficulty. Of these words, 390 had frequencies ranging from one to twenty-one. A selected list of these words was given to more than eight hundred children, who were asked to give their meanings when used in arithmetic problems. The results "proved conclusively that a large percentage of the pupils did not understand many of the terms used in problems." The results of this type of test should be checked with the results of a similar test which presents the words in context. As a second step in the study, a list of fifty words "commonly used in arithmetic problems" was checked with the Thorndike word list. The results showed that a majority fell in "the first five 'One Thousand' group, while eleven words were

so unusual as not to be included within the *Teacher's Word Book*." The third step in the study consisted in having pupils read several problems and mark the words which they did not understand. These words were explained, and the pupils were requested to restate the problems in their own words. "This exercise revealed many words and phrases which were a constant source of difficulty to the pupils." The study also supplied evidence of the help derived by the pupils when the teacher gives specific attention to vocabulary difficulties.

Relation of reading to problem-solving.—In a discussion of difficulties in problem-solving Stevenson (54) pointed out that the correlation between reading ability and problem-solving was .32 and that the correlation between scores on a reading test in arithmetic and scores on the Buckingham Scale for Problems in Arithmetic was .78. He concluded that "the ability to read problems is not greatly different from the general reading ability" and that ability to comprehend is essential in the solution of problems.

Vocabulary difficulties in problem-solving.—Stevenson (54) also cited examples of wrong meanings attached to words used frequently in arithmetic. For example, numerous wrong definitions given by pupils for such words as "average," "area," and "commission" were listed. Stevenson questioned the ability of pupils to comprehend verbal problems and to solve them correctly without definite knowledge of the correct meanings of the words included.

Effect of training in reading on achievement in arithmetic.—Evidence of the effect of general training in reading on achievement in arithmetic tests was secured by Lessenger (33). In September, 1923, Form A of the Stanford Achievement Test was given to 111 pupils in Radcliffe, Iowa, in Grades III–VIII, inclusive. During the year "emphasis was placed upon instruction in reading, but no variation from the typical programs for arithmetic or any other school subject was permitted." At the end of the year the tests were repeated. "The gains in arithmetic due to the training in reading are large enough to be statistically significant, and the conclusion that specific training in the reading of the instructions for the solution of examples would eliminate almost completely errors of the type under discussion seems to be incontrovertible." When the records of sixty-seven pupils who were poor readers in September were examined, the im-

provement in arithmetic was found to be even more marked than was the improvement in the case of the group as a whole.

Value of selecting and recognizing the processes involved in arithmetic problems.—Greene (**26**) compared the progress of two groups of pupils in ability to solve reasoning problems in arithmetic as measured by the Monroe Standardized Reasoning Test in Arithmetic. Each group received special training for one hundred minutes distributed "over not more than two weeks." Sixty-two pupils were trained to read the assigned problems for the purpose of "selecting and recognizing the process involved in the solution" of each. Thirty pupils were trained to "select the correct principle to use in solving the problem." Although the experiment was open to a number of possible criticisms, the result indicated clearly that the former method was superior.

[*To be concluded*]

THE LAW GOVERNING THE USE OF SCHOOL PROPERTY FOR OTHER THAN SCHOOL PURPOSES

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The growing tendency to regard education as something more than mere textbook knowledge and to relate more definitely the work of the school to the life of the community has led to a wider use of the school plant. Everyone must appreciate the economic loss when a well-equipped school building, for one reason or another, is not made to contribute in the largest possible way to the social and general educational well-being of the community in which it is located. It is interesting to note, therefore, the influence of the law on the development of the schoolhouse as a social and intellectual center of community life. This article seeks to determine the extent to which the courts, in the absence of statutory authority, will permit boards of education to make use of school property for purposes other than those involved in the conduct of a regular public school and to determine the liability of school boards where injuries grow out of such use.

It may be said in general that public-school property is merely held in trust for the state by the local authorities[1] and that the legislature may therefore authorize the use of such property for any purpose not prohibited by the constitution.[2] There are few cases testing the constitutionality of statutes which authorize collateral use of school property, but it seems that there are not many constitutional restrictions on legislative discretion with regard to the uses to which school property may be put. As an illustration, a statute permitting the use of schoolhouses for literary, religious, and other meetings was held constitutional by the Supreme Court of Illinois.[3] Notwithstand-

[1] *Board of Education of Jefferson County* v. *Board of Education of the City of Louisville*, 182 Ky. 544, 206 S.W. 869; *Attorney General* v. *Lowrey*, 199 U.S. 233; *Pass School District* v. *Hollywood City School District*, 156 Cal. 416, 105 Pac. 122.

[2] *Brooks* v. *Elder*, 189 N.W. 284.

[3] *Nichols* v. *School Directors*, 93 Ill. 61, 34 Am. Rep. 160.

ing the fact that the constitution prohibited the appropriation of any public fund for any church or sectarian purpose, the court declared that "religion and religious worship are not so placed under the ban of the constitution that they may not be allowed to become the recipient of any incidental benefit whatsoever from the public bodies or authorities of the state." In Indiana[1] and Iowa[2] also statutes authorizing wide use of schoolhouses have been sustained.

OTHER THAN SCHOOL PURPOSES IN GENERAL

In the absence of specific statutory authority, boards of education in some states are not permitted by the courts to grant the use of school buildings for other than strictly school purposes.[3] The reasoning on which the decisions are based is well illustrated by an excerpt from an opinion of the Supreme Court of Kansas.

> May the majority of the taxpayers and electors in a school district, for other than school purposes, use or permit the use of the schoolhouse built with funds raised by taxation? . . . . We are fully aware of the fact that all over the state the schoolhouse is, by general consent, or at least without active opposition, used for a variety of purposes other than the holding of public schools. Sabbath schools of separate religious denominations, church assemblies, sometimes political meetings, social gatherings, etc., are held there. Now none of these can be strictly considered among the purposes for which a public building can be erected, or taxation employed. . . . . The argument is a short one. Taxation is invoked to raise funds to erect the building; but taxation is illegitimate to provide for any private purpose. Taxation will not lie to raise funds to build a place for a religious society, a political society, or a social club. What cannot be done directly cannot be done indirectly. . . . . Nor is it an answer to say that its use for school purposes is not interfered with and that the use for other purposes works little, perhaps no, immediately perceptible injury to the building and results in the receipt of immediate pecuniary benefit. The extent of the injury or benefit is something into which courts will not inquire. The character of the use is the only legitimate question.[4]

An equally extreme position is taken by the Supreme Court of Pennsylvania.

> The use of school buildings by the community at large for public meetings for the discussion of subjects of general interest may be said to be in the line

[1] *Hurd et al* v. *Walters*, 48 Ind. 148. [2] *Townsend* v. *Hagan*, 35 Ia. 194.

[3] *Spencer* v. *Joint School District*, 15 Kan. 259; *Bender* v. *Streabich*, 182 Pa. St. 251, 37 Atl. 853; *School District No. 8* v. *Arnold*, 21 Wis. 665.

[4] *Spencer* v. *Joint School District*, 15 Kan. 259.

of their use for educational purposes, but it is not the use intended by law. The public-school system is for the instruction of pupils who may attend the schools and not for the instruction or entertainment of other persons. The school directors are trustees of the school property for that use, and they may not, against objection, authorize or permit its use for other purposes. If the school buildings may be used for meetings for the convenience, pleasure, or instruction of the general public, all other school property may with equal propriety be so used, and it would be but a step further to apply a part of the school funds to the same use.[1]

Other courts take just the opposite point of view. In Vermont, for example, school buildings may be used incidentally for purposes having no relation to the schools.[2] The Supreme Court of Rhode Island has handed down the following decision.

Our school system, with all the intellectual and material means for instruction provided by it, was designed to promote public education, and any use of school property tending to this end which does not interfere with the regular schools may be permitted by the trustees of a school district as within the spirit of their trust.[3]

RELIGIOUS EXERCISES

The authority of boards of education to permit the use of schoolhouses for religious meetings of one kind or another has been frequently challenged in the courts. According to one line of decisions, such uses are permitted provided there is no interference with the regular work of the school.[4] "Courts in a Christian land," said the Supreme Court of South Carolina, "cannot be supposed to take judicial notice that holding a preaching service in a schoolhouse when not required for a public-school purpose is a breach of the condition" in the deed that the site shall be used for a public schoolhouse.[5]

In a Nebraska case[6] it was the opinion of the court that holding Sunday school or religious meetings so infrequently as not to exceed

[1] *Bender* v. *Streabich*, 182 Pa. St. 251, 37 Atl. 853.

[2] *Greenbanks* v. *Boutwell*, 43 Vt. 207.

[3] *Appeal of John W. Barnes*, 6 R.I. 591.

[4] *Greenbanks* v. *Boutwell*, 43 Vt. 207; *Townsend* v. *Hagan*, 35 Ia. 194; *Davis* v. *Boget*, 50 Ia. 11; *Harmon* v. *Driggers*, 107 S.E. 923; *State ex rel. Gilbert* v. *Dilley*, 95 Neb. 527.

[5] *Harmon* v. *Driggers*, 107 S.E. 923.

[6] *State ex rel. Gilbert* v. *Dilley*, 95 Neb. 527.

four times a year does not make the schoolhouse a place of worship within the meaning of the constitutional provision that no person shall be compelled to support a place of worship against his consent. In Indiana[1] and Illinois[2] the courts have sustained statutes authorizing the use of school property for religious exercises. While school boards in some states may permit the use of schoolhouses for religious meetings even in the absence of any specific statutory authority, it should be kept in mind that this is a matter clearly within their discretion.[3]

In some states, on the other hand, no kind of religious service may be held in a public schoolhouse unless specifically authorized by statute.[4] The courts reason that school districts have only such powers as are delegated by statute or such as are necessary to effectuate the purposes of their creation. Holding religious exercises, it is said, is altogether foreign to the function of a public-school board. Funds raised by taxation, moreover, may not be put to any private use.

SOCIAL, FRATERNAL, AND POLITICAL MEETINGS

The courts are divided as to the authority of boards of education to permit the use of schoolhouses for private and public dances. Under a statute providing that boards of education may authorize the use of school buildings for public assemblies, the Supreme Court of Nebraska sustained a rule permitting dancing by school children.[5] In California social dancing is permitted under a statute which authorizes the use of schoolhouses for "recreational activities."[6] The Supreme Court of Utah, however, takes another view of the matter. In that state a school board, purporting to act under a statutory provision which authorized any use of a schoolhouse provided there was no interference with the seats or other

[1] *Hurd et al.* v. *Walters*, 48 Ind. 148.

[2] *Nichols* v. *School Directors*, 93 Ill. 61, 34 Am. Rep. 160.

[3] *Boyd* v. *Mitchell*, 69 Ark. 202, 62 S.W. 61.

[4] *Spencer* v. *Joint School District*, 15 Kan. 259; *Bender* v. *Streabich*, 182 Pa. St. 251, 37 Atl. 853; *Dorton* v. *Hearn*, 67 Mo. 301; *Scofield* v. *Eighth School District*, 27 Conn. 498; *School District No. 8* v. *Arnold*, 21 Wis. 665.

[5] *Brooks et al.* v. *Elder et al.*, 189 N.W. 284.

[6] *McClure* v. *Board of Education*, 176 Pac. 711.

furniture, proposed to remove the seats from a schoolroom temporarily in order to provide space for social dancing. In issuing a restraining order, the court made it clear that it would not permit the use of public property for any such private purpose.

> The private use which it is thus proposed to make of this public-school building is unauthorized and contrary to public policy, as it would in effect be a misappropriation of trust property . . . . and it would also be opposed to the principle that the sovereignty cannot tax its citizens for private purposes. It must be conceded that neither the state, nor any political subdivision thereof, could legally levy and collect a tax for the purpose of building a dance hall, and, should such a thing be attempted, any taxpayer whose property would be subject to such a tax could bring an action in a court of equity and restrain its collection. This being so, it necessarily follows that a board of trustees have no right, and it would be in violation of their sworn duty for them, as is proposed in this case, to, in effect, convert a public-school building into a public and private dance hall.[1]

There is likewise a marked conflict of judicial opinion with regard to the authority of school boards to permit the use of school buildings for political meetings and social gatherings. For example, the Supreme Court of Kansas has ruled that a schoolhouse may not be used for any purpose other than the conduct of a public school, the reason being that taxation may not be invoked for any private purpose.[2] Township trustees in Indiana, on the other hand, may permit the use of schoolhouses for elections and other township meetings.[3] Municipal authorities, it has been held, may not lease the auditorium of a high-school building for use as a public theater.[4] The court, however, did not wish to be understood as taking the extreme position that a municipality may not make casual and incidental use of a school building not inconsistent with the main purpose for which it was erected. The Supreme Court of Arkansas sustained a contract by which the upper story of a school building was leased to the Odd Fellows for use as a lodge.[5] The Sons of Temperance, on the other hand, were denied the use of a schoolhouse in Wisconsin, notwithstanding the fact that a majority of the electors of the dis-

[1] *Lewis* v. *Bateman*, 26 Utah 434, 73 Pac. 509.
[2] *Spencer* v. *Joint School District*, 15 Kan. 259.
[3] *Trustees of Harmony Township* v. *Osborne*, 9 Ind. 458.
[4] *Sugar* v. *Monroe*, 108 La. 677, 32 So. 961.
[5] *Cost* v. *Shinault*, 113 Ark. 19, 166 S.W. 740.

trict had given their consent.[1] In Illinois, where a statute authorizes boards of directors to permit such meetings as they may deem proper, an upper room of a schoolhouse may be leased to fraternal organizations.[2]

PRIVATE SCHOOLS

There is not a great deal of judicial precedent on the authority of boards of education to permit the use of schoolhouses for conducting private schools. Here again the courts are divided. In Rhode Island the matter is left to the discretion of the trustees. In Vermont it has been held that a private school may be conducted in a public schoolhouse because "such a school was for the furtherance of the general object and design" for which the building was erected.[3] The opposite opinion is held in Ohio, where a lease of a public schoolhouse for conducting a private school for a term of weeks has been declared a violation of the trust to which the building was dedicated.[4] Moreover, the court refused to draw any distinction between uses which are definitely educational in character and those which are not. Similarly, it has been held in Pennsylvania that a public-school building may not be used for a private school nor for the giving of private music lessons.[5] The Supreme Court of Illinois refused to permit the village of Winnetka to lease a school building without rent to a corporation which ran a private school and charged tuition.[6]

DORMITORIES

There has been little litigation with respect to the authority of boards of education to spend school funds for the erection of dormitories to be used by pupils. In what seems to be the only case in point,[7] the Supreme Court of Illinois held that the village of Winnetka had no such authority unless granted by statute. School officers "can only exercise the powers conferred expressly or by implication. They may, no doubt, do such things as may be necessary and essential to effectuate the purposes of the creation of the body

[1] *School District No. 8* v. *Arnold*, 21 Wis. 665. [2] *Lagow* v. *Hill*, 238 Ill. 428.

[3] *Russell* v. *Dodds*, 37 Vt. 497; *Chaplin* v. *Hill*, 24 Vt. 528.

[4] *Weir* v. *Day*, 35 Ohio St. Rep. 143.

[5] *Hysong* v. *Gallitzin*, 164 Pa. 629, 30 Atl. 482, 26 L.R.A. 203.

[6] *Sherlock et al.* v. *Village of Winnetka*, 68 Ill. 530. [7] *Ibid.*

of which they are officers. But they have not unlimited discretion. They must look to the law creating the office for their warrant in all they do officially." In the opinion of the court, a dormitory was not only unnecessary but improper for a free public school. It should be said, however, that this opinion was rendered in 1873, and it is entirely possible that it would not be followed as a precedent today.

COMMERCIAL PURPOSES

As a general rule, the courts will not permit the use of school property primarily for purposes of commercial gain. "No authority is given to a school district to acquire real property and hold it for any other purpose than a site for a schoolhouse; nor can the board bind the district to pay for property acquired and held for any other purpose."[1] School boards, it is said, derive their funds from taxation and other sources of public revenue and are not, therefore, free to venture into commercial enterprises. Moreover, school corporations, being mere instrumentalities of the state, exercise only delegated authority. For whatever action it may wish to take, a board of education must find statutory authority, either expressed or implied, or the action must grow out of the general purposes for which the board was created—out of the law of its own being. Obviously, then, the right of a school board to enter into commercial enterprises can be acquired only as the result of a statutory enactment.

A case in point is that of *Tyre* v. *Krug*.[2] The Board of Education of Milwaukee authorized the principals of certain high schools to sell books and supplies in the school buildings. This was done to accommodate the pupils and to enable them to purchase their books at a lower price. It was conceded that the supplies were sold at a profit, though the testimony was conflicting as to whether they were sold for personal profit. The statutes of Wisconsin authorized the board of education to adopt such measures as would promote the good order and public usefulness of the schools. This broad grant of power, however, was not considered sufficient to warrant the action taken, and the Supreme Court of the state issued an injunction restraining the further sale of books at a profit.

[1] *School District* v. *McClure*, 136 Ia. 122, 113 N.W. 554.

[2] *Tyre* v. *Krug*, 159 Wis. 39, 149 N.W. 718, L.R.A. 1915C, 624.

A board of education in West Virginia discovered oil on school property and attempted to execute a lease for the production of oil and gas. The Supreme Court of the state found that there was no specific statutory authority for executing such a lease and held that it could not be done.[1] A school board, it was reasoned, is not a business corporation; it cannot "mine, manufacture, produce, barter," because these activities are "utterly foreign to the object of its formation. It cannot lease land held by it though it has the fee-simple legal title. . . . . It cannot lease it for money-making, because the statute provides for the accomplishment of its object by taxation, not by negotiation in the business world." The court could scarcely imagine a use to which the property could be put more foreign to the purpose for which the board had been vested with title.

In a more recent case,[2] however, the Court of Appeals of Kentucky ruled that where trustees have authority by statute to hold and dispose of school property for the use and benefit of the district, they may execute an oil lease on school lands. It was said that the mere leasing of property to others for purposes of development is not engaging in a commercial venture but is only an effort to dispose of the property in such a way as to secure the largest possible returns. "There can be no sound or practical reason given that will deprive school authorities who own property under which there are valuable minerals from entering into contracts for its development, and particularly would this seem to be true when the character of the mineral is such that adjoining land owners may profit at the expense of the school property by the failure of the school authorities to enter into such contracts." The court referred to the earlier West Virginia case but declined to follow it as a precedent. Similarly, it has been held in Pennsylvania that land deeded to a school district "for school purposes only" may be leased for the production of oil and gas.[3]

In those states where school property may be used for non-school purposes, it seems that boards of education will be permitted to charge for such uses. For example, in Vermont, where school prop-

[1] *Herald* v. *Board of Education*, 65 W. Va. 765, 65 S.E. 102.

[2] *Williams et al.* v. *McKenzie*, 262 S.W. 598.

[3] *Phillips Gas and Oil Company* v. *Lingenfelter*, 262 Pa. 500, 105 Atl. 888.

erty may be used for a variety of purposes even in the absence of any definite statutory authorization, the following decision was rendered.

> While it would not be lawful for the district to make lofts, or rooms, for the mere purpose of realizing profit by renting for pay, it would not be unlawful for the district to receive pay and profit for the use of rooms legitimately made for school purposes, when not in use for those purposes, and when they may be used for other purposes without detriment to the district in respect to its schools.[1]

In Arkansas a school district was permitted to lease an unoccupied room in the schoolhouse to the Odd Fellows for a consideration of fifty dollars annually.[2]

ATHLETICS

Careful investigation discloses only one case dealing with the authority of school boards to lease school property for athletic activities. A board of education in Texas leased a part of the public-school grounds as a baseball field during the summer months on condition that a fence be erected inclosing the whole of the school property, the title to the fence to be vested in the board of education. The Court of Appeals refused to grant a writ of injunction restraining the board from executing the terms of the contract because the use of the school grounds as a place to play baseball subserved a public purpose and was not inconsistent with the purposes to which the property had been dedicated.[3]

DISTRICT LIABILITY FOR NEGLIGENCE

It is a well-recognized principle of common law that neither a school district nor a municipality is liable for injuries growing out of the negligence of its officers, agents, or employees in the management of school affairs.[4] This non-liability rests in the main on the theory that school districts and municipalities are arms of the state performing a public or governmental function. There are, however, surprisingly few cases involving the liability of boards of education

[1] *Greenbanks* v. *Boutwell*, 43 Vt. 207.

[2] *Cost* v. *Shinault*, 113 Ark. 19, 166 S.W. 740.

[3] *Royse Independent School District* v. *Reinhardt*, 159 S.W. 1010.

[4] *Gold* v. *Baltimore*, 14 A.L.R. 1389, 112 Atl. 588; *Ernst* v. *City of West Covington*, 116 Ky. 850, 76 S.W. 1089; *Sullivan* v. *School District No. 1*, 191 N.W. 1020.

for injuries to persons while using school property for other than school purposes. In all probability the courts would extend the doctrine of non-liability to cover injuries of this kind. For example, in Massachusetts it was held that a citizen who was injured while descending defective steps in a schoolhouse for the purpose of voting could not recover damages from the city.[1] Similarly, the city of Worcester was not held liable for injuries to a woman whose horse was frightened on a public highway by the discharge of a blast used in excavating for the foundations of a public schoolhouse.[2] In a case where a school board was having a tree felled on its property, the tree injured a person who was at work on a nearby highway, but the board was not held liable for the injury.[3] In New York, on the other hand, where a school board permits the use of a school gymnasium as a community center, it will be held liable for injuries growing out of its own negligence. A boy who was not a pupil in the school was injured on a defective springboard at a time when the gymnasium was being used as a community center. Judge Page, in rendering the opinion of the court, ruled that by "permitting the community center to use the gymnasium and apparatus for a community use, there was an invitation to those who availed themselves of the privilege to come upon the premises and use the apparatus. Plaintiff was upon the premises as an invitee and not as a mere licensee. The duty, therefore, rested upon the board of education to use reasonable care to keep the premises and appliances in a safe and suitable condition, so that invitees would not be unnecessarily and unreasonably exposed to danger."[4] If this decision, rendered in 1920, should prove to establish a precedent, it would have an exceedingly important bearing on the wider use of the school plant. There really seems, however, to be little justification in equity for distinguishing between injuries sustained by a pupil and injuries sustained by a person in a school building while engaged in athletic and social exercises. It might be maintained with some show of reason that school boards in permitting the use of school buildings for social centers, public meet-

[1] *McNeil* v. *Boston*, 178 Mass. 326, 59 N.E. 810.

[2] *Howard* v. *City of Worcester*, 153 Mass. 426, 27 N.E. 11.

[3] *McKenna* v. *Kimball*, 145 Mass. 555.

[4] *Kelly* v. *Board of Education of the City of New York*, 180 N.Y.S. 796.

ings, and other community affairs are not performing a strictly governmental function, but such a view ignores the wider social service of the modern school.

SUMMARY AND CONCLUSION

It may be said in conclusion that the courts in Kansas, Missouri, Ohio, Pennsylvania, Utah, West Virginia, and Wisconsin narrowly restrict the use of school property for other than school purposes. On the other hand, in Arkansas, California, Indiana, Iowa, Kentucky, Nebraska, Rhode Island, South Carolina, Texas, and Vermont the courts have permitted the use of school property in a variety of ways. Furthermore, it should be pointed out that within recent years the great majority of cases have been decided in favor of a wider use of the school plant. Moreover, no case was found where a statute authorizing specific uses of school property was not upheld. Nevertheless, few, if any, courts seem to realize fully that the modern school seeks to touch the life of the community at every possible angle. Too often cases are decided in terms of individual rights rather than in terms of social function. It seems highly desirable, therefore, that state legislatures should pass laws which set forth definitely the purposes for which school property may be used.

AN ANALYSIS OF THE PHONETIC ELEMENTS IN A BASAL READING VOCABULARY

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The first of the "needed scientific investigations in the field of phonetics," as summarized in Part I of the Twenty-fourth Yearbook of the National Society for the Study of Education, is "a comprehensive study of the frequency of occurrence of all important phonetic elements and of the various combinations in which they occur, based on a word list which shows the frequency of the words in common use in primary-reading materials."[1] Since the writer has been engaged for some months in a study which meets this need at least in part, it seems wise to publish at this time the results thus far obtained. The purpose of the study was twofold: (1) To compare the letter symbols occurring in a basal reading vocabulary with the ideal standard of a phonetically perfect language, in which each written symbol would have but one possible sound or pronunciation and each distinct sound would be represented by but one written symbol. It is a well-known fact that the English language is not thus phonetically perfect, but just how closely it approaches the standard or how widely it departs from it has never been accurately determined. (2) To find out which of these letter symbols are of fairly constant pronunciation and of sufficiently frequent occurrence to make the establishing of a bond between the symbol and the sound a possible aid to a child who is learning to read.

Thorndike's list of the words most commonly used in reading[2] was taken as the basis of all the work, not because this list is regarded as perfect but merely because it is the best list available at the present time. In two respects it is ill adapted to research in primary reading: (1) It was not compiled exclusively from children's litera-

[1] *The Report of the National Committee on Reading*, p. 87. Twenty-fourth Yearbook of the National Society for the Study of Education, Part I. Bloomington, Illinois: Public School Publishing Co., 1925.

[2] Edward L. Thorndike, *The Teacher's Word Book*. New York: Teachers College, Columbia University, 1921.

ture. (2) It fails to list separately derived forms which are in constant use in first readers, such as the words "boys," "taller," "running," and "walked." The newer primary readers are, nevertheless, based on the Thorndike list. A study of the phonetic elements in the words in this list was therefore considered of major importance.

The preferred pronunciation in the *Standard Dictionary* was used for every word.

Two basic assumptions underlie the study. (1) If phonetics has any real utility as an aid in learning to read, this utility must be capable of clear demonstration early in the school course, before the child has a reading vocabulary of three thousand words. The analysis was therefore limited to the twenty-five hundred words of most frequent occurrence, that is, to the *1a*, *1b*, *2a*, *2b*, and *3a* words of Thorndike's classification. (2) The printed words "away" and "awful"; "mystery" and "myself"; "character," "charade," and "charter" begin alike. Unlike his teacher, the beginning reader is unable to differentiate syllables or pronunciations. This study therefore took no account of syllables as such but considered any combination of successive letters as a possible phonetic symbol.

In order that the survey might be complete, the frequency of occurrence of each pronunciation of each of the symbols in the list on page 598 was tabulated. Final *e* and final *y* following a consonant were added to the list and considered separate symbols as soon as their frequency of occurrence began to be apparent.

The range of frequencies for these symbols is very wide. Many symbols occur only once or not at all, and many others appear less than fifty times in the entire list of twenty-five hundred words. At the other extreme are found *er*, with a frequency of 235, and final *e*, with a frequency of 528.

The results of comparing the symbols with the standard "one symbol, one sound" are equally interesting. The number of sounds per symbol ranges from one to eleven, the mean being 3.6, instead of the single one required by the phonetic standard. The symbol *at*, which is commonly taught in the first grade, occurs with eleven different pronunciations in the words analyzed. The primers of a former day were often filled with references to "that fat rat" and to boys named "Nat" who had "hats" and "bats" and liked to "pat" the

"cat" on the "mat." These words seemed to justify the teaching of *at* as having the one sound, but alas for the child who later met some of the other ten sounds of *at*, as in "what," "nation," "national,"

ab	ka	eu	ih	ui	ho	uy	yp
ac	la	ev	ij	vi	jo	uz	yq
ad	ma	ew	ik	wi	ko	bu	yr
ae	na	ex	il	xi	lo	cu	ys
af	oa	ey	im	yi	mo	du	yt
ag	pa	ez	in	zi	no	fu	yv
ah	ra	be	io	ob	po	gu	yx
ai	sa	ce	ip	oc	ro	hu	yz
aj	ta	de	iq	od	so	ju	by
ak	ua	fe	ir	of	to	ku	cy
al	va	ge	is	og	uo	lu	dy
am	wa	he	it	oh	vo	mu	fy
an	xa	ie	iu	oj	wo	nu	gy
ao	ya	je	iv	ok	xo	pu	hy
ap	za	ke	iw	ol	yo	qu	jy
aq	eb	le	ix	om	zo	ru	ky
ar	ec	me	iy	on	ub	su	ly
as	ed	ne	iz	oo	uc	tu	my
at	ee	oe	bi	op	ud	vu	ny
au	ef	pe	ci	oq	uf	wu	py
av	eg	re	di	or	ug	xu	ry
aw	eh	se	fi	os	uh	yu	sy
ax	ei	te	gi	ot	uj	zu	ty
ay	ej	ue	hi	ou	uk	yb	vy
az	ek	ve	ji	ov	ul	yc	wy
ba	el	we	ki	ow	um	yd	xy
ca	em	xe	li	ox	un	yf	zy
da	en	ye	mi	oy	up	yg	ch
ea	eo	ze	ni	oz	ur	yh	ng
fa	ep	ib	oi	bo	us	yj	ph
ga	eq	ic	pi	co	ut	yk	sh
ha	er	id	ri	do	uv	yl	th
ia	es	if	si	fo	uw	ym	-e
ja	et	ig	ti	go	ux	yn	-y

"natural," or "material." It is possible that the causes of some of the reading difficulties in the upper primary grades are directly traceable to such teaching.

There is a wide range not only in the frequency of occurrence of

the symbols and in the number of sounds per symbol but also in the number of phonetic and unphonetic occurrences. For convenience in terminology, throughout this article those occurrences of any symbol where it is pronounced with its most common sound will be called phonetic; all other occurrences will be called unphonetic. The relation between the phonetic and the unphonetic occurrences of the forty symbols having the highest total frequencies is shown in Table I. The fallacy of assuming that frequency of occurrence alone is a sufficient criterion of the usefulness of a symbol is shown more clearly in Figure 1. In the case of exactly one-half of the symbols the number of unphonetic occurrences is larger than the number of phonetic occurrences. The phonetic occurrences of some of the symbols, such as *-e*, *-y*, *ch*, *ai*, and *sh*, far outnumber the unphonetic occurrences.

It is evident that there are several factors to be considered in any adequate scoring of the symbols to determine their relative importance. The total occurrence is important, for even a symbol which occurs twenty-seven times, the mean occurrence of all symbols, is found in but 1 per cent of the words. The phonetic frequency is very important, for, other things being equal, that symbol is of greatest utility in learning to read which occurs most often with the same sound. Other things are not equal, however. One symbol, *ee*, with a phonetic frequency of 61, has only two unphonetic occurrences, both with the same sound. Another symbol, *or*, with a slightly higher phonetic frequency, 63, has 70 unphonetic occurrences, which are apportioned among five sounds. In the same way, a comparison of the symbols *on* and *es* or of the four symbols each of which has a total occurrence of 50 reveals striking differences. Obviously, both the number of unphonetic occurrences and the number of possible sounds must be taken into account. The point of view of the beginning reader must again be carefully considered.

A child can easily learn one sound for a certain symbol. He can also, although less advantageously, learn two sounds and try first one and then the other in an effort to unlock an unknown word. If neither of these attempts brings success, he is forced to resort to guessing and to trying all the other possible sounds of the symbol. His reading difficulties are therefore increased by every additional unphonetic occurrence of a symbol, and his problem is magnified in

proportion to the number of possible sounds. A method of scoring was therefore sought which would give the highest scores to those

TABLE I

RELATION BETWEEN THE PHONETIC AND THE UNPHONETIC OCCURRENCES OF THE FORTY SYMBOLS HAVING THE HIGHEST TOTAL FREQUENCIES

Symbol	Number of Phonetic Occurrences	Number of Unphonetic Occurrences	Total
-e	528	0	528
er	182	53	235
ea	88	57	145
-y	122	18	140
en	94	40	134
or	63	70	133
ar	58	65	123
th	63	49	112
in	60	48	108
an	48	50	98
ou	47	51	98
re*	48	45	93
on	34	53	87
es	59	27	86
at	23	56	79
te*	36	42	78
ch	69	6	75
el	54	21	75
ri	29	44	73
de*	31	41	72
ai	55	16	71
co	28	43	71
ro	29	41	70
ng	48	21	69
al	29	40	69
sh	66	0	66
it	26	39	65
ow	24	41	65
la	22	41	63
ee	61	2	63
ve*	26	35	61
ic	17	40	57
ur	31	25	56
se*	34	20	54
li	20	34	54
ac	33	18	51
gh	47	3	50
is	31	19	50
ca	18	32	50
ma	18	32	50

* This includes only initial and medial symbols, not final.

symbols having high frequency for one or two sounds and having a proportionately small number of unphonetic occurrences apportioned

among but few sounds. Several methods of scoring were tried out. While the method decided upon is not perfect, it is believed to give

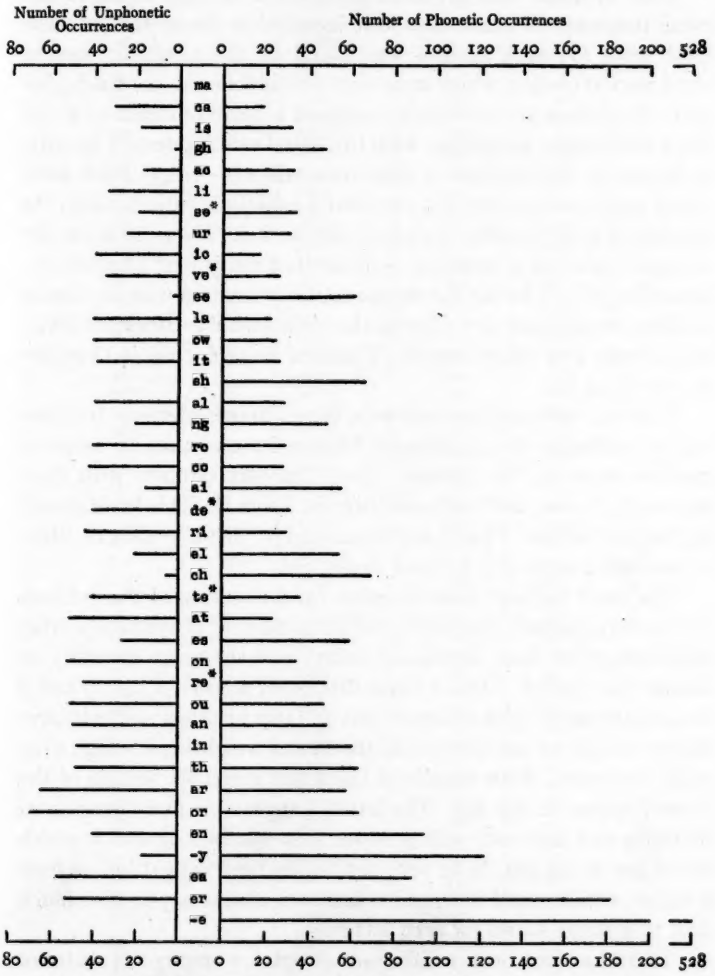

FIG. 1.—Phonetic composition of symbol frequencies. (The symbols followed by asterisks include only initial and medial symbols, not final.)

a fairly true picture of the relative usefulness of the symbols from the point of view of the child who is learning to read.

Only symbols with phonetic frequencies at least equal to the mean frequency of occurrence were included in the scored list. The final score for each symbol was found in the algebraic sum of three partial credits, which were obtained as follows: (1) Each phonetic occurrence was arbitrarily assigned a positive credit of 4. (2) Each unphonetic occurrence with the sound ranking second in order of frequency was assigned a negative credit of −1. (3) Each additional unphonetic occurrence received a negative credit equal to the number of other possible sounds of the symbol. The symbol *em*, for example, received a credit of +96 for its twenty-four phonetic occurrences, of −5 for its five unphonetic occurrences with the sound ranking second, and of −6 for its three additional occurrences divided between two other sounds. The final score for *em* is therefore 96−5−6, or 85.

For only sixty-six symbols were there enough phonetic frequencies to outweigh the unphonetic frequencies and thus to secure a positive score for the symbol. These sixty-six symbols with their key words, scores, and ranks are listed in Table II. This table should be read as follows: Final *e* as pronounced in "little"—that is, silent —received a score of 2,112 and ranks first.

The most striking facts revealed by the scoring of the symbols are the wide range in the scores, the small number of symbols scoring high enough to have significant value, and the great diversity of sounds per symbol. Final *e* ranks first, with a score of 2,112, and *fi* ranks sixty-sixth, with a score of but 5. Only nineteen symbols have scores as high as 100 in spite of the liberal weighting for high phonetic frequency. Four sounds of the letter *e* and six sounds of the letter *i* appear in the list. The letter *h* appears in five consonantal digraphs and only once with a vowel. The symbols *ag* and *fi*, which stand last in the list, have very commonly been taught before final *e* and *er*, which stand first, and it has been customary to give much drill to a single sound for each letter.

There has long been a difference of opinion among advocates of various systems of phonetic instruction as to the position of the vowel in a phonogram. Of the sixty-six symbols which received posi-

TABLE II

RELATIVE PHONETIC IMPORTANCE OF TWO-LETTER SYMBOLS

Symbol	Key Word	Score	Rank
-e	little	2,112	1
er	after	662	2
-y	baby	478	3
en	ten	327	4
ch	chair	270	5
sh	shall	264	6
ee	sleep	242	7
th	that	205	8
ai	rain	197	9
el	bell	195	10
gh	high	185	11
ng	sing	171	12
ea	eat	163	13
in	in	161	14
es	best	155	15
re*	rest	133	16
ay	day	131	17
io	fashion	102	18
di	did	100	19
le*	let	97	20
ac	act	96	21
ap	apple	90	22
wi	wind	85	23.5
em	them	85	23.5
oo	too	84	25
me*	men	83	26
ce*	cent	82	27
il	will	78	28
te*	after	74	29
ne*	next	72	31
ad	bad	72	31
ri	America	72	31
et	get	71	33.5
or	for	71	33.5
mi	milk	70	35
ur	burn	69	36
wh	what	64	37.5
se*	send	64	37.5
de*	delight	62	39
ni	animal	61	40
an	can	58	42
ow	flower	58	42
ow	show	58	42
ir	first	55	44
ec	second	54	45
fo	for	53	46
ev	never	50	47
am	am	47	48.5
id	ride	47	48.5
li	like	46	50
ol	old	44	51
su	sun	41	52.5

*This includes only initial and medial symbols, not final.

TABLE II—*Continued*

Symbol	Key Word	Score	Rank
ha	have	41	52.5
ti	beautiful	39	54
it	visit	37	55
is	this	35	56
ar	are	32	57
ul	full	30	58.5
pe*	pen	30	58.5
po	post	24	60
be*	number	20	61
co	cold	13	62.5
co	corn	13	62.5
ra	ran	11	64
ag	village	8	65
fi	fish	5	66

* This includes only initial and medial symbols, not final.

tive scores, fifty contain both a vowel and a consonant. Twenty five of these fifty symbols have the vowel preceding the consonant, and twenty-five have the vowel following the consonant. There is a slight predominance of the former position in the earlier part of the list. Evidently the contentions of both parties in the controversy have some justification in the facts.

What of the other contentions of the makers of phonetic primers? How is one to reconcile common practice with the facts revealed here concerning phonetic symbols?

According to a widely used reading series published in 1912, the following phonetic elements should be taught during the first weeks of school: *be, ha, la, ma, pa, sa, ra, ta, ca, ga, fa.* Four of these do not occur even twenty-seven times in the twenty-five hundred words; five have low negative scores; and the only positive scores, those for *ha* and *ra*, are but 41 and 11.

A very elaborately planned reading manual published in 1923 recommends the early presentation of the symbols shown in Table III. This is to be the child's first sight of phonetic symbols, and the time for word study during the ensuing five weeks is to be devoted largely to drill on the forty symbols. As can be noted in the table, however, only seven of the symbols have scores as high as 50; three have negative scores; and more than one-half have less than the mean frequency of occurrence and therefore receive no scores. In the case of

ag and *it*, the scores gained were not for the pronunciations usually taught, for their most common sounds are illustrated in "village" and "visit," while the sounds usually taught are found in "bag" and "sit."

That these two books are somewhat typical of many others is shown by Ducker's analysis of "eighteen well-known and widely

TABLE III

FIRST PHONETIC SYMBOLS IN A 1923 READING MANUAL

Symbol	Phonetic Score*	Symbol	Phonetic Score*
Day 22:		Day 24:	
ap	90	am	47
ep	.....	em	85
ip	.....	im	.....
op	.....	om	−53
up	.....	um	.....
ab	.....	an	58
eb	.....	en	327
ib	.....	in	161
ob	.....	on	−115
ub	.....	un	.....
Day 23:		Day 25:	
at	−228	ag	8
et	71	eg	.....
it	37	ig	.....
ot	.....	og	.....
ut	.....	ug	.....
ad	72	ax	.....
ed	.....	ex	.....
id	.....	ix	.....
od	.....	ox	.....
ud	.....	ux	.....

* The symbols for which no scores are shown have less than the mean frequency of occurrence.

used reading manuals published since 1900."[1] According to this analysis, two-thirds of the phonetic systems make the division between primer and first-reader phonetics which is shown in Table IV. Of the eleven primer symbols, only three have positive scores, and seven have less than the mean frequency of occurrence. Of the eleven first-reader vowel combinations, on the other hand, six have high positive scores, and but three have less than the mean frequency of occurrence.

[1] *The Report of the National Committee on Reading*, pp. 87–89. Twenty-fourth Yearbook of the National Society for the Study of Education, Part I. Bloomington, Illinois: Public School Publishing Co., 1925.

While there has apparently not been as great progress as one might wish since the days of Webster's utterly unscientific *ba, be, bi, bo, bu,* there are three hopeful tendencies which are worth noting. (1) The composite list is certainly indicative of a sincere endeavor to select those symbols which have one constant pronunciation. (2) Ducker's report also states that "the suffixes *ing, er,* and *e* are commonly introduced in primer work and *ed* more often in first-reader work." The results of the present study would lend support to this

TABLE IV

SOME SYMBOLS COMMONLY TAUGHT*

Symbol	Phonetic Score	Symbol	Phonetic Score
Primer:		First reader:	
at	−228	ea	163
ill	.....	ee	242
ack	.....	ay	131
all	.....	ai	197
an	58	oa	.....
en	327	aw	.....
and	.....	ie	−54
ell	.....	oy	.....
in	161	ow	58
og	.....	ou	−23
un	.....	oo	84

* The phonetic occurrences for those symbols included here which are not in the list for this study were especially computed for this table, but none equaled the mean frequency of occurrence.

practice. (3) In the report on reading in the Twenty-fourth Yearbook of the National Society for the Study of Education mention is made of various attempts "to analyze the total reading experiences of the children and to discover the most needed elements as shown by their frequencies."[1] So far as is known, the present study is the first one to apply the standard of "one symbol, one sound" and to provide a combined score for frequency of occurrence and constancy of pronunciation.

Nearly all phonetic systems assume that single consonant and vowel sounds should be the first elements taught, although no scientific investigation of their importance in relation to the phonetic standard has ever been made. The writer is now engaged in the computation of scores for single-letter sounds.

[1] *The Report of the National Committee on Reading,* p. 87.

TEACHING PUPILS TO READ ARITHMETIC AND OTHER SUBJECT MATTER

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In his school work a pupil needs facility in the rapid, exact reading of subject matter more than he needs any other type of reading ability that he may be led to acquire. The facility that is needed does not usually result from general training in reading. Even training in reading the subject matter of one field does not provide sufficient ability to read other types of material. Each of several fields of subject matter possesses a specific vocabulary that the reader must be able to use and understand. The type of expression and the turn of phrase of each kind of subject matter are more or less its own. A particular portion of human experience lies back of the content of each subject, and that experience must be illuminated for the reader before he can adequately sense the meaning of the content which he reads. Each of several types of subject matter employs its own signs, symbols, technical expressions, maps, charts, tables, or other forms of thought representation.

What has been said is not meant to minimize in any way the importance of good general training in comprehension and in thoughtful reading. Such training is essential. To it should be added specific training that is meant to function directly in the reading of the subject matter which the pupils are trying to master in their own school grades. This article contains some directions and suggestions that were prepared to aid the teachers in Hutchinson, Kansas, in giving such training. They are based on difficulties found in the subject matter used, and they contain some terms, types of information, and suggested experience that should be useful in overcoming such difficulties.

Although portions of the training to read subject matter appear in the earlier grades in connection with subjects other than reading, a period of six weeks in the low sixth grade and another period of six weeks in the high sixth grade are set aside, during which training

in reading is concerned entirely with training in the reading of subject matter. This plan was instituted in September, 1924. At that time a bulletin was prepared containing suggestions and directions with regard to training pupils to read arithmetic. Portions of this bulletin are reproduced in this article. This year training in the reading of geography has been added. Aids for teachers in training pupils to read history, a subject which offers serious difficulties to some pupils, will be supplied later.

The teachers were informed with regard to the difference between the purpose of the lessons in training pupils to read arithmetic and the purpose of the regular lessons in arithmetic.

> In giving these lessons, keep clearly in mind your purpose, which should be to increase the power of the children to *read* the problems in arithmetic. It is not the purpose of these lessons to develop new principles of arithmetic, or to solve problems, or to increase skill in manipulating numbers. Leave these purposes to other classes and devote the time and effort to gaining increased skill in getting the meaning from the subject matter of arithmetic.

The bulletin was issued not so much for the purpose of supplying materials, suggestions, and directions that the teachers would need in training pupils to read arithmetic as for the purpose of stimulating the teachers to want to give this kind of training and of indicating in a preliminary way the types of instruction that needed to be provided. This statement was made: "The following are intended only to be suggestive of the kinds of activities in which teachers may well have pupils engage while training them to read the subject matter of arithmetic. All teachers will want to add other activities which they themselves devise." Some valuable original materials and devices were worked out by certain of the teachers. Most of the teachers who gave this training said that it had been much needed and that the pupils had really gained much from it.

The importance of building up a background of understanding and experience as a preparation for reading arithmetic intelligently was stressed. "Perhaps nothing increases the ability of pupils to read arithmetic understandingly more than do the possession of a large fund of information about the situations which arithmetic problems express and contact with these situations. In giving training, always take time to explain the concrete situations and the actual practice

that lie back of the terms that are used and the facts that are implied in the subject matter." Pupils who have had this type of training seem to possess more information about quantitative aspects of daily living and to be more interested in such information. A teacher recently said that the fact that the teachers were expected to give this type of information as well as to teach the pupils how to solve problems had improved the teaching of arithmetic.

Ability to pronounce clearly and correctly words that are commonly encountered is considered essential to facility in reading. In some kinds of subject matter one may get thought from words which one is unable to pronounce. If the thought must be discussed with others or if the ideas must be handled in practical ways, as is the case in arithmetic problems, uncertainty about the pronunciation of the words is a distinct handicap. Distinctions between meanings of similar words are lost. Thought shifts from the idea to the troublesome word that expresses it, even if the meaning is apprehended, and if one must talk about it before one's fellows, consciousness of self is likely to retard thought about the idea expressed. Habitually correct pronunciation of the vocabulary commonly used in arithmetic is important. It is no more likely to be acquired accidentally than is the correct pronunciation of other words. In fact, the chance to acquire it purely by imitation is not as good as the chance to acquire ordinary words in that way. Among the words used in arithmetic problems the correct pronunciation of which should be taught are the following:

arithmetic	multiplication	minuend	product	subtraction
numerator	decimal	eleven	eighth	twelfth
column	measurement	width	figure	fifth
subtrahend	miscellaneous	multiple	receipt	linear
operation	equivalent	interest	Arabic	hundredth
principal	twentieth	length	example	problem
numeration	multiplicand	integer	quotient	avoirdupois
rectangular	denominator	million	decade	budget
eleventh	altitude	quantity	sixth	separately
graph	estimate	height	area	circumference

In subject matter in which the words offer little difficulty of pronunciation, the meaning of the terms and expressions used may be exceedingly vague to some or to all of the pupils. In such cases the

tendency is to read the words rather fluently and to be indifferent about them as meaningful expressions that tell of real things or of actual performances. On this point the following suggestions were given.

The following terms or expressions often occur in arithmetic. Acquaint the pupils with them. It will be well to lead the children to find some of them in problems. Pupils may use some of them in statements or even in original problems in order to show that they understand how they are to be used. Some of these might be treated in the same way that phrases are exposed in reading. Many of them will seem very simple to the teacher, but she will probably find some pupils in her room who do not understand them.

a decimal system of writing numbers	the value of
a receipt for money paid	right-hand figure
the city must borrow	Roman numerals
the debtor and the creditor	Arabic numerals
bill for goods purchased	column
date of purchase	total area of
operations are indicated by signs	total sum of
a street vendor sold	combining
a contractor built	in what order
the decimal equivalent	factors of
his speedometer read	an estate
picked cherries on the halves	receipts and expenses
takes a quart of milk in the morning	cash sales
trips on a mileage book	charge sales
the average yield of	rental was
barrels of oil produced	collecting a bill
has a bank account	square yards in
postman's route is	of rectangular shape
the school session is	at each revolution
subscribed $5.00 to	the fare to

Arithmetic subject matter constantly uses terms indicating containers that are used in marketing. Many of these are unfamiliar to some children, and they are likely to feel that they are reading about pure abstractions, not about concrete matters, instances of which they might observe. Thought and imagination are not called into play by the reading matter, which lacks the color and the significance that belong to it. An incident may illustrate this. A girl read indifferently and with certain bewilderment a problem in which a "hogshead" was the container that was mentioned. She did not seem

either to sense the meaning or to be aware that the term might have a meaning which she had not gained. When she was told about hogsheads and was shown pictures of them and was given some account of their use in an earlier time, she became much interested. Above all, she wanted to see a hogshead. For months this idea was uppermost whenever she was in a store or other place where there was a possibility of seeing one. When she again read a problem containing the term "hogshead," there was no lack of color and significance to her as she read it. It is not only containers little used today that are unfamiliar to some pupils. Many containers in present-day use are unknown to some children. Likewise, pupils often lack experiences that would make meaningful to them expressions indicating amounts or quantities of measures. In the bulletin prepared for the teachers for use in training pupils to read arithmetic, suggestive lists of containers, quantities, measures, etc., were supplied from the subject matter of the arithmetics that the pupils used. The following is an excerpt.

Ideas of quantity and some practical information should be developed in connection with lists similar to the following. It would be well to have the children read, preparing a list as they do so. Develop the meanings and give practice in reading and in using the expressions in appropriate context. Keep the ideas true to life. Do not merely use the words.

a case of	a cord of	a bolt of	a tub of
a card of	a pail of	a skein of	a package of
a bushel of	a bunch of	a keg of	a ball of
a jar of	a box of	a bag of	a crate of
a gross of	a quart of	a gallon of	a bottle of
a basket of	a can of	a car of	
a barrel of	a bundle of	a ton of	

If pupils know how things are measured, they will read many problems more understandingly. Develop information about matters similar to the following:

Water—meter registers cubic feet
Gas—measured by cubic feet
Electric light—measured by watt hours
Automobile speedometer—measures by miles
Air temperature and body temperature—measured by degrees
Lumber—measured by the board foot
Pipes—measured by inches (inside measurement)
Floor coverings—usually measured by square or linear yards

Sand—usually measured by the hundredweight
Wood—measured by the cord
Wheat—measured by the bushel; bought and sold on the basis of the weight
Paper and envelopes—measured by number or weight
Buttons—measured by the dozen
Cloth—measured by the yard or bolt
Wall paper—measured by the roll or double roll
Coal—measured by the ton
Land—measured by the acre; city lots, by the foot

Pupils profit by practice in finding and reading instantly the symbols and abbreviations used in arithmetic. All pupils should understand what is implied when these are used. A list of these was given to the teachers. Since such a list is easily prepared, it is not reproduced here.

To arouse interest in this kind of training and to insure varied types of practice in reading related to arithmetic, the following list of occasions and situations in which number and quantity occur was prepared under the challenge, "Can pupils read these?"

Numbers on tags indicating the prices of articles
Numbers in street addresses
Numbers in shoes indicating size and width
Telephone numbers in a directory
Numbers indicating prices and numbers indicating articles in a mail-order catalogue
Numbers on scales indicating weight
House numbers indicating distance east or west, north or south, of a starting point
Numbers on a clockface indicating hours and minutes and numbers indicating time by a stop watch
Numbers indicating dimensions in drawings and in house plans
Numbers on different kinds of meters
Numbers on thermometers
Numbers indicating dates, such as 2/7 and '25
Numbers indicating certain parts of a book, such as Vol. I, Bk. 2, chap. 2, and p. 97
Numbers on combination locks on post-office boxes, lockers, etc.
Numbers in directories of office buildings indicating the various offices
Numbers designating dress patterns
Numbers indicating scores in basket ball or other games
Numbers on theater tickets indicating row and seat
Numbers in recipes indicating quantities and proportions of ingredients
Numbers on rulers, tapelines, and yardsticks

Numbers on road maps indicating certain highways
Numbers on menus indicating prices of food
Numbers showing main, co-ordinate, and subordinate points in outlines
Numbers in music indicating time
Numbers indicating parcel-post zones and postage rates
Numbers showing results of standard tests in school subjects
Numbers in weather reports indicating temperatures
Numbers on oven gauges on cookstoves
Numbers on signposts indicating distance to certain points
Numbers on time-tables indicating time of arrival and departure of trains
Numbers on Pullman tickets indicating car and berth
Numbers on map scales indicating distances
Numbers as they occur in any kind of book index
Numbers on bank deposit slips, pass books, or checks
Numbers indicating price quotations in the markets

Actual practice in reading thoughtfully the subject matter of arithmetic must be added to acquaintance with the vocabulary and understanding of the concrete background of number facts. The following quotation gives some instances of attempts to secure practice in thoughtful reading.

Practice in trying to comprehend the meaning of a problem as quickly and as completely as possible is helpful. The following exercises based on the booklet, *Problems without Figures* (F. A. Owen Co.), may help to make pupils alert about trying to get the meanings and help them to take note of the important facts as they read. The following is suggested as one method of procedure in this practice. During the recitation time use all the copies of the book there are in your building. Several pupils, in turn, may each read silently from the book the problem which the teacher indicates. Then all books are laid down. Each pupil, on a sheet numbered to correspond with the numbers of the problems writes the answer "Yes" or "No" after the teacher asks each question. The answers are then verified by further reading of the same problem.

The following are typical questions.

Does the problem tell you what the house cost?
Does the problem ask how far it is from New York to Chicago?
Does the problem want to know what the eggs cost?
Does the problem tell you how much a gallon of water weighs?

True or false answers given to exercises based on the same booklet and conducted in the same way may also help to train pupils to read discriminatingly.

The following statements are typical. The first three are false, and the fourth is true.

It is the quotient and the remainder that Robert knows.

The problem asks how thick a common brick is.

The problem asks how much a sack of flour weighs.

You are to tell how you will find the number of yards of carpet needed to cover the floor of your dining-room.

Have the pupils read from their arithmetics. This should be done silently. Use various means of testing the pupils' comprehension. The following are some of the things that they may do as evidence that they comprehend.

1. They may reproduce the problem in almost the same language as is used in the book.

2. They may paraphrase the problem and express it in their own language, telling all the ideas that are contained in it.

3. They may state just the facts that are stated in the problem, omitting everything except the statements that are made.

4. They may tell first what the problem asks and then tell what it tells them.

5. They may answer questions which the teacher asks them about the ideas expressed in the problem.

6. They may pass judgment on whether the facts stated in the problem are true-to-life situations. Are the transactions told about in the problem similar to those that actually occur?

7. They may tell the teacher any new information that has been added to their knowledge by reading the problem, that is, any facts of general application which they did not know before. These might be facts about practices, about prices, about quantities, about vocations, etc.

It is not necessary that the pupils should always reproduce the entire problem from memory. A pupil may keep the problem before him sometimes and read it as often as necessary in order to ascertain all that he has occasion to find out. The more he reads, the greater his fluency in this kind of reading may be expected to become. Therefore, see that each pupil reads silently a large amount of subject matter in arithmetic. It is not necessary that pupils always use the figures that are involved in the problems. Often it is unwise to ask the pupil to remember various numbers that are given in a problem. He might better write them down while looking directly at the book.

Training pupils in the reading of geography has been undertaken this year. Through their work in training pupils to read arithmetic, the teachers were already conscious of the types of needs that should be provided for in training pupils to read any specific subject matter. They were also somewhat accustomed to planning exercises for specific training purposes. Fewer directions seemed necessary in the case of geography than in the case of arithmetic. Since geography covers so wide a field, it seemed advisable to compile terms and expressions rather comprehensively in order that the teachers might

have them at hand instead of having to spend considerable time and effort in order to secure them. For the purpose of economy in building concepts with related ideas, it seemed advantageous to assemble the terms somewhat according to the matters to which they pertain, although no effort was made at rigid classification. The following lists were prepared for the teachers to use in developing ideas that might be called up in the minds of the pupils in response to the language that they encounter as they read the subject matter of geography.

TERMS PERTAINING TO THE SKY, PLANETS, OR MAPS

Cloud, moon, earth, star, constellation, orbit, eclipse, planet, axis, hemisphere, continent, latitude, longitude, degree, globe, relief map, political map, zone, belt, Equator, poles, Arctic Circle, Tropics.

TERMS PERTAINING TO TRANSPORTATION

Navigation, railroad, locomotive, truck, automobile, aeroplane, ship, vessel, barge, yacht, ferry, bicycle, motorcycle, bus, taxicab, boat, freight, passenger, express, mail, traffic, goods in transit, wharf, cargo, destination, junction, Pullman, stateroom, deck, berth, parcel post.

TERMS PERTAINING TO WEATHER CONDITIONS OR CLIMATE

Tornado, hurricane, temperate, torrid, frigid, tropical, freezing, cool, warm, hot, rain, snow, sleet, hail, storm, cyclone, damp, cloudy, clear, foggy.

TERMS PERTAINING TO LAND FORMS OR LAND USES

Peninsula, plateau, plain, prairie, hill, mountain, desert, highland, lowland, valley, ravine, gulch, canyon, glen, gorge, cave, pass, island, cape, basin, delta, precipice, cliff, slope, ditch, continent, dock, ledge, fissure.

TERMS PERTAINING TO WATER, WATER FORMS, OR WATER USES

Ocean, river, creek, pond, lake, stream, rain, dew, snow, mist, waterfall, steam, sleet, hail, vapor, waves, rainfall, gulf, sea, strait, canal, ice, foam, bay, channel, irrigate, water gate, water power, bubbles, waterspout, fog.

TERMS PERTAINING TO ANIMAL LIFE OR FISH

Sheep, cattle, fowls, horses, mules, wool, swine, pork, beef, mutton, fish, oysters, lard, venison, fur, fur-bearing animals, stock-raising, meat-packing.

TERMS PERTAINING TO URBAN LIFE OR RURAL LIFE

Apartment, garage, automobile, elevator, department store, interurban, warehouse, grain elevator, subway, elevated trains, street car, tramway, mail coach, storage room, court, theater, produce, furnace, meadow, field, pasture, tractor, furrow, harrow, binder, combine, harvester, wheat, corn, oats, pen,

barn, stack, shock, bundle, corncrib, patch, yield, orchard, plantation, homestead, claim, ranch.

TERMS PERTAINING TO OCCUPATIONS

Textile, leather goods, smelting, spindles, shoe lasts, inventor, merchant, plumber, banker, grocer, electrician, civil engineer, brakeman, conductor, coffee plantation, rice plantation, sugar plantation, sugar refinery, oil refinery, carpenter, printer, bookbinder, tailor, mechanic, painter, machinist, jeweler, librarian, architect, salesman, contractor, manager.

TERMS PERTAINING TO VEGETATION

Plant, tree, vine, bush, vineyard, garden, shrub, grass, flower, blossom, bud, pod, nut, berry, fruit, woods, forest, timberland, woodland, grain, flax, jungle, underbrush, hedge, grove, swamp.

There is in geography, as in arithmetic, the need to acquire accuracy and certainty in the pronunciation of words that are commonly used. A list of these, of which the following are samples, was prepared: "geography," "America," "Arctic," "mountainous," "Labrador," "sphere."

The remainder of this article is quoted from the bulletin which was prepared for use by the teachers who are giving training in reading the subject matter of geography.

The following are terms taken from the subject matter of the textbooks which the sixth-grade children use. It will add greatly to their ability to read such subject matter readily and rapidly if you will acquaint them thoroughly with each of these terms and develop ideas to accompany the terms. Try to involve the use of the term often enough so that the children will not hesitate in reading it or in using it themselves. Sometimes they will supply these terms themselves out of the subject matter that they try to read. Other times you may write the expression on the board and then discuss it. The more pictures and objects you can use, the better you will be able to impress the term. Do not, however, neglect to use the term yourself over and over again and to have the children use it over and over again.

mineral products
harbor
sphere
mountain chain
coal was formed
a telescope
a tropical jungle
plains
mountain system
temperature favorable to agriculture
has an elevation
a log drive
Some of the fish are taken to the port fresh, but most are salted.
quarried
Weirs are set for fish.

fertile
political map
ocean
the globe
a compass
Mississippi Valley
laden with moisture
Winds bring vapor.
lignite
moraines
valleys
longitude
import of goods
zones of temperature
migrate
maize
luxuriant vegetation
advancing in civilization
Scandinavia
the Russian Quarter (of the city)
scale of maps
climate
continent
island
chains of islands
a microscope
a fossil
vegetation
swamps
canyons
physical map
relief map
a globe
automobile map
the four directions
sediment
arid land
an ice sheet
icebergs
peninsulas
parallel
latitude
export goods
reservoirs
munitions are made
the vicinity of
deposited on the sea bottom
abundant rainfall for growth of dense forests
wholesale trade
a textile manufacturing center
plantations
farms
rice culture
by building jetties
water shut in by levées
a terminus of railways
the pioneers
irrigation
is the metropolis
junction of railways
the salmon industry
native products
Panama Canal Zone
an irregular outline
a log jam
Rutland marble is one of the most common headstones.
A trawl is commonly used for cod.
truck-farming
warp and woof
means for transportation
surface of states is regular
mountains were a barrier
smelting iron ore
manufacture of pottery
elevated railroads
the delta of the flood plains of the Mississippi
ranches
a refinery
water power
navigate the river
located upon a water route
Indian reservations

domesticated plants and animals
nomadic life
the continental shelf
immigrant
distribution of population
equable climate
by building breakwaters into the lake
transcontinental railways
freight vessels from many nations

Children are very literal-minded in many cases where language is meant to be figurative or where words are used in a sense different from that to which they are accustomed. When they encounter such expressions, even though they are finally able to get the meaning, the fact that the literal meaning is the one that is likely to flash into their minds first makes it take them longer to read subject matter that contains such expressions than it would if they were familiar with the sense in which such expressions are used.

The following are a few expressions that might puzzle children because of their tendency to think literally. The part that is italicized is the part of each expression that may hinder the child in getting the meaning that the subject matter intended him to get. You will think of others.

Foreigners have *come to our shores* to live.

The eastern, central, and southern portions of the valley *are well watered.*

Plants *furnish food to animals.*

has made the ocean *a highway*

although some tribes thus *approached civilization*—never became *powerful people*

The warm summers *allowed abundant harvests.*

There is *a dense population.*

broad trough between the mountain systems

saw a *school of fish*

mountains *have influence* upon

soft-coal *beds*

lines of steamships

the *work of coral polyps*

low *coral keys and reefs that fringe* the southern *tip* of Florida

great *artery of trade*

a *pass* through the mountains

Pioneers *had pushed* across the mountains.

the corn *belt stretches*

air *robbed of its vapor*

trunk lines extend

See that the children have much experience in reading silently from the first 150 pages of Tarr and McMurry's Second Book and from the first 300 pages of Smith's *Human Geography*, Book II, and anything from Smith's *Human Geography*, Book I. While they are doing such reading, study them individually to see whether they are getting the meanings and, in the case of pupils who are not getting the meanings, to see what are the difficulties.

THE DEMONSTRATION LESSON AS AN AGENCY IN SUPERVISION

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This discussion of the demonstration lesson is based on the activities of the thirty-two rural-school supervisors who work directly with the State Department of Education of Alabama. These supervisors encounter a great variety of situations, from the county with a school term of five months and eighty school buildings, many with little or no equipment, to the county with a school term of nine months and fourteen school buildings, all well equipped. Even if the best theory were not opposed to the development of uniform supervisory procedure throughout the state, these greatly varying conditions alone would preclude the adoption of any prescribed methods and devices for state-wide use. However, certain general principles underlying good supervisory procedure have come to be accepted as governing the work of all supervisors. Of these general principles, at least three relating to the use of the demonstration lesson as an agency in supervision have been generally accepted as sound: (1) The demonstrations should be confined to those phases of work included in the objectives set up for the county at the beginning of the year. (2) The supervisor must be as well acquainted as possible with the school situations in which the various teachers work, and there must be an understanding between the teachers and the supervisor as to the principal features of the various situations. (3) The demonstrations must be planned to meet the individual needs of as many teachers as possible.

Of the various types of demonstration lessons, the following are the most common: (1) the lesson or series of lessons taught for a group of teachers who are meeting outside the classroom, (2) the lesson taught for the individual teacher by the supervisor during the classroom visit, (3) the lesson or series of lessons taught by a teacher in her own classroom for a group of visitors.

The lesson taught outside the classroom.—Demonstration lessons

are frequently taught at initial teachers' meetings or at institutes where limited time and large numbers make the visiting of actual classrooms undesirable. A group of children is brought to the meeting place, and a lesson is taught by the supervisor or a teacher who may or may not be the regular teacher of the children.

This type of situation may be utilized with profit to show the more mechanical phases of class routine and of teaching procedure. No lessons should be attempted which depend for their success on their relation to other lessons which have not been given to the pupils. For instance, the pupils should not be asked to write a letter if no time has been given previously to the consideration of the characteristics of a good letter. On the other hand, the teacher may demonstrate the initial lessons in teaching reading or the first of any series of lessons.

When a demonstration of this type is given at the first meeting of a group of new teachers, the teachers, while they may show interest, do not feel the need of the lesson as they will after their schools are in session. Hence the chief value of demonstration in such a situation lies perhaps in the fact that it furnishes a basis for comparison and discussion during subsequent classroom visits.

This type of demonstration teaching, while possessing certain values, is so artificial that it should never be used when the classroom with its regular teacher is available.

The lesson taught for the individual teacher by the supervisor during the classroom visit.—The demonstration lesson taught by the supervisor in the classroom has certain distinct advantages over other types of demonstration teaching, but, because it is so often misused, its dangers greatly outweigh its values, in number at least. It is true that the situation is a fairly natural one, the only strange factor being the supervisor herself. There is the opportunity to meet the peculiar and immediate needs of the teacher, needs which should not wait until the group meeting or which, being peculiar to one situation, would not justify taking the time of the whole group for consideration.

In common practice, however, the supervisor frequently attempts a demonstration before she has analyzed the situation sufficiently to know what is needed or how to proceed wisely. Having

analyzed the situation carefully, she may attempt to show a different procedure without first explaining to the teacher why the lesson is being taught. The following situation may be reported by way of illustration. The supervisor had entered the room just as the teacher was beginning a lesson in primer reading. The friendly relations existing between the two enabled the supervisor to indicate without comment that the lesson was to proceed as usual. The pupils were asked to read aloud, but they needed constant prompting since they knew only a few of the words. When several children had read, the supervisor asked whether she might teach the class for a while. The teacher gladly took a seat at the side of the room and watched the supervisor give a preparation lesson, which consisted of a blackboard exercise in recognition of words, phrases, and sentences. This procedure was well carried out, but it was entirely new to the teacher. Before the supervisor left the school, she discussed the lesson with the teacher, pointing out the advantages of the new procedure. At the next visit, about six weeks later, the supervisor found the old procedure being used with about the same results in word recognition. When she was asked whether she had tried the other way, the teacher said, "Yes, but the children do not know the words well enough to make the lesson successful; it takes too much time, anyway."

The supervisor and the teacher may come to an understanding after discussing the teacher's procedure and the proposed change; the teacher may see clearly how different the results would probably be with the new way; and she may appear anxious to try it out. The teacher may also be capable enough to try the new way, but the supervisor makes the mistake of depriving the teacher of this opportunity by doing the teaching herself. It is quite likely that, unless the teacher expresses herself as incompetent, she can secure better results in making the trial than can the supervisor. The latter is unfamiliar with many of the details involved in the lessons previously taught. She must spend considerable time in building up a situation for using the new device; that is, she and the pupils must get adjusted to each other, and she may need to make some explanation of the new way and even of her presence as teacher. Thus the whole demonstration occupies a much longer time than the teacher ever has

available for the particular class, but the teacher does not see that the actual teaching of the lesson itself does not take more than the allotted time, the rest of the period being occupied with preliminaries.

Two other dangers are often apparent in even the best demonstration lesson given by the supervisor for the individual teacher. The teacher may feel that, with her limited training, she cannot hope to attain the skill demonstrated by the supervisor, and, as a result, she may not view the demonstration as a procedure which she can accomplish or even approximate. Furthermore, whatever the teacher's attitude may be, the pupils are so overstimulated during the supervisor's teaching that there is a decided let-down after her departure. Sometimes the children remark that they "wish she could be our teacher all the time." This may or may not be a compliment to the supervisor, but it is quite likely to be a disadvantage for the teacher.

Still another practice sometimes observed is that of the supervisor's catching at some excuse for teaching because she feels that she must do something to show her usefulness. The effect of help given indiscriminately is confusion in the mind of the teacher as to the service that can be rendered by the supervisor.

Some suggestive principles governing this type of demonstration are as follows: (1) The supervisor must be familiar with the procedure the teacher has been using, and she must know what the teacher is capable of doing in the way of adopting a better procedure. (2) There must be an understanding between the teacher and the supervisor as to why the lesson should be taught and as to what the lesson is to illustrate. (3) When the lesson is finished, the teacher should summarize the procedure, stating what she has learned or pointing out which features she thinks are worth trying. (4) If there is any doubt about the advisability of demonstrating for the individual teacher, there should be no demonstration. (5) The supervisor should not teach the lesson if she is not familiar with the subject matter.

The lesson taught by a teacher in her own classroom for a group of visitors.—The possibilities of the lesson taught by a teacher under ordinary classroom conditions in the presence of other teachers have

not been fully realized, although some direct and far-reaching results have been accomplished in many counties. Its practicability lies chiefly in the fact that it is prepared for; for this reason it has fewer possible dangers than have the other types of demonstration teaching. Most teachers would not attempt to teach for others without making thoughtful preparation for their lessons by getting help from several sources. Thus the best teachers as well as the mediocre teachers may be stimulated to further improvement. An illustration of helping teachers to improve through teaching demonstration lessons is provided in the case of the teacher in a one-room school who was asked to allow fourteen other teachers in similar situations to observe her teaching. At first, the teacher objected, saying that she could not teach well enough. When her attention was called to the value of the demonstration and the later discussion among the teachers as a means of improving her own teaching, she agreed to the plan. As a result, she demonstrated very good classroom routine and some good methods in primary reading, history, and geography.

There are many other possibilities of the demonstration by a teacher in her own classroom. There is the opportunity to show good management of many details which would be confusing if brought into the discussion between the supervisor and the teacher following a classroom visit. Such advice as not to let all the children recite at once and to allow the children to distribute the materials may well be omitted from the conference with the teacher and reserved for the demonstration period when the teacher can see for herself the better practice.

Another opportunity in this type of demonstration is that of reaching the indifferent teacher without introducing the personal element. The good teacher who feels that her training is sufficient may be helped to realize the possibilities for improvement in her methods. The mediocre teacher who hesitates to admit her difficulties will find her attitude changed entirely by observing another teacher who is willing to submit her teaching to the criticism of the group.

One of the chief values of the series of lessons taught by a teacher in her own classroom is that desirable relations between children and teacher can be illustrated as by no other means. It is difficult to tell young teachers what constitutes desirable attitudes toward their pu-

pils, but it can be shown very easily if the right teacher is selected for the demonstration lessons.

The dangers of this type of demonstration teaching may be offset by careful preparation on the part of the supervisor. There should not be so many lessons taught at one meeting that the observers are confused or fatigued. The number of lessons taught consecutively by a teacher for a given group will depend partly on the phase of classroom procedure that is being demonstrated. A group of teachers might very profitably sit through two or three hours of teaching in one room if their goal were to study the following of the daily schedule with the attendant routine, assignment of work, rest periods, etc. The same group with the same goal would probably gain little by observing a first-grade reading lesson, then going to a second grade for another reading lesson, to a third grade for two drill lessons, and to the fourth grade for an arithmetic lesson. Such moving about would be decidedly profitable, however, if the object were to study the qualities of a good drill lesson. The writer has in mind a meeting where a group of teachers visited three different rooms and observed three different drill lessons, two in arithmetic and one in primary reading. This observation was followed by a summary of the desirable characteristics common to all three lessons.

There is danger of giving demonstrations that are beyond the resources of the observers. An instance in point is that of a socialized lesson in geography in which the pupils used many references but no basic text. The demonstration was given by an excellent teacher in a school in session nine months of the year for a group of teachers from schools in session only five months. The lesson was a skilful piece of work on the part of the teacher, work that would have been a credit to any school system. Of course, it furnished an ideal, but there were teachers in the group, most of them in fact, who had no training beyond the high school, whose pupils did not know north from south on a map, and who had no materials except an inadequate supply of textbooks. A more practicable demonstration might have shown how to use the available textbooks intelligently.

When the demonstration lessons have been carefully planned, there remains an important task for the supervisor, that of preparing for the discussion which is to follow. It is one thing for teachers to

see and recognize good teaching; it is another thing for them to be able to summarize the principles underlying this teaching so that they can apply them to their own work. This summary will be made more readily and more intelligently if there is a definite guide for observation in the minds of the teachers as they watch the procedure. Brief observation outlines may be sent to the teachers in advance of the meeting or given out after they arrive at the school. When the demonstration work has had the limited development usually present in the rural or semirural field, this outline must be confined to a few outstanding features and must be stated so clearly that misinterpretation will be avoided.

The following outline was used by a supervisor in a county in which one of the objectives set up at the beginning of the year was "improvement in the organization of the recitation."

SUGGESTIONS FOR JUDGING A RECITATION

1. State the problem before the class for solution.
2. To what extent was this problem an outgrowth of the needs and interests of the pupils?
3. What provision was made for developing initiative among the pupils?
4. State the leading questions of the recitation.
5. Where was the recitation centered: Among the pupils? In the teacher?
6. List the outstanding points in the organization of the recitation.
7. What evidence was there that the pupils were personally concerned about the solution of the problem?
8. What point in the organization of the recitation did most to insure the success of the lesson: The summary? The assignment?

The following outline was prepared by another supervisor to guide in the observation of three drill lessons taught by different teachers. Most of the visiting teachers were untrained.

1. What was the best feature of each lesson?
2. Why do you think these features were the best?
3. Is there opportunity for improvement along these same lines?
4. What were other good features of the lessons observed? Why do you think they were good?
5. Considering the three lessons, what would you state as the qualities of a good drill lesson?

During the discussion period this outline, which had been given to the teachers upon arrival at the school, was used as the basis for

discussion. After the teachers had listed on the board the qualities of a good drill lesson, they were asked to give examples of the content in various subjects which should be mastered and hence require drill lessons. One of the teachers called attention to the fact that the "Results to Be Attained" in the different subjects as outlined in the state course of study would serve as a guide in selecting materials for drill. Thus the teachers left this meeting with definite notions of how to teach such content as must be made automatic and with a new point of view with regard to the usefulness of the state course of study.

The real value of demonstration lessons is determined by the resulting improvement in the classroom procedure of the teachers concerned. Just as the demonstration lesson should be preceded by visits to the classrooms to be represented at the meeting, so it should be followed by visits for the purpose of determining the extent to which the teachers are profiting from the observation and discussion. These visits also give the supervisor an opportunity to discuss with the teachers suggestions for the next demonstration meeting.

SUMMARY

The most practicable demonstration lesson is that which is taught by a teacher in her own classroom for a group of visiting teachers. There are three important tasks for the supervisor in connection with such a demonstration: (1) to visit each school which is to be represented at the meeting for the purpose of becoming acquainted with the needs and the resources, (2) to plan carefully for the discussion which is to follow the teaching, and (3) to check the values of the demonstration and obtain suggestions for the next meeting by making a second visit to the schools.

Educational Writings

REVIEWS AND BOOK NOTES

The contributions of psychology to vocational adjustment.—The past year has brought forth several volumes which indicate a clearing of the verbal haze surrounding the problems of vocational guidance. Those who have followed the literature in this field for the past fifteen years must have felt that they were being led in circular, if not in devious, pathways. Certain recent books have dealt constructively with the organization of vocational guidance, but none have approached it from the psychological point of view.

A practical contribution[1] has appeared which is designed: "(1) to point out the psychological problems involved in choosing a vocation and becoming proficient therein, (2) to describe the attempts that have been made toward their solution, and (3) to suggest and illustrate scientific methods that may be employed in the exploration of the vast field that remains to be covered" (p. v). Since it is addressed to business executives, social workers, and personnel directors, as well as to educators, the style is distinctly popular, but the content is strictly scientific.

To the reader who has not made vocational psychology a study, this book will reveal a startlingly wide range of topics. A glance at the paragraph headings will indicate the diversity of the subject matter. A few of them are as follows: "Methods of Hiring," "Personnel Director," "Source of Interest," "Characteristics of Morale," "Labor Turnover," "Spoiled Work," "The Rise of Job Analysis," "Eye-Movements of Proofreaders," "Phrenology," "Height and Weight of Salesmen," "Measures of Intelligence," "Vocational Miniature," "Musical Intellect," "The Psychoanalytic Method," "The Will-Profile," "Influence of Glandular Secretions," "Locating Leaks in Management," "Rating Methods," "Physiological Adaptability," and "Vocational Guidance for Adults." This is by no means an exhaustive list of the topics Professor Kitson skilfully weaves together under his fourteen chapter headings, but it must impress the reader with the fact that vocational adjustment involves almost every branch of human research.

The author's central theme is a plea for scientific method in the meeting of the problems in this field.

[1] Harry Dexter Kitson, *The Psychology of Vocational Adjustment.* Philadelphia: J. B. Lippincott Co., 1925. Pp. viii+274.

In applying psychology to the problems of vocational adjustment we do not pursue a method of mysterious divination or necromancy. Instead, we push our inquiries with the strictest adherence to scientific method. Psychology is a "science which aims to describe and explain the conduct of living creatures." In saying it is the science by which we are seeking to describe and explain the conduct of workers, which is really the task before us in this book, we mean that psychology employs the method common to all sciences—experiment [p. 15].

Professor Kitson's attitude toward occupational adaptability will cheer those who fear that mental measurement and other modern devices are driving us toward the abyss of fatalism. He says:

When we have established the fact that certain shifts of vocation are necessary to successful growth in a changing world, then we shall abandon the futile search for a fatalistically predetermined vocation for each individual. We shall regard vocational life as a process of evolution, in which successful adjustment in one line of work may be but the preparation for another more exacting occupation. In other words, we shall look upon each job as merely a stepping-stone to another [p. 50].

The "square-peg-round-hole" theory of vocational fitness is properly dynamited in chapter xiii. The method of attack may be indicated by quoting the following significant statements.

A person's vocation has come to be regarded as a field to which he has been foreordained according to the constitution of the universe, and to which he must piously cling throughout his life. . . . . To hold that an individual is "cut out" or "born for" one or even a specific number of vocations and to attempt to designate him for one or several at an early age, or at any age, is to assume that the world and the vocations in it will always be the same. As a matter of fact, this is an incorrect view of vocations. They are in constant change. . . . . A good problem for economic research, for example, would be to chart, with the aid of census reports and other data, the histories of some of the dying occupations like, perhaps, wagon-making, bartending, etc., and to chart the progress of some of the newly born occupations like aviation and the radio [pp. 226–27].

The adaptability of the human mechanism makes absurd the theory that a human being is fit for only a single vocation. "If one believes in the theory of innate fitness, one must assume that the nervous system of a banker, for example, is different from that of a salesman. So far as is known, there is nothing in the brain of either of these men that is unique" (p. 227).

Chapter viii, "Interest as a Factor in Vocational Adjustment," should be read and heeded by those who are responsible for exploratory courses in junior high schools. If the author's view is accepted, there will naturally follow a decidedly different emphasis in exploratory activities. Interests are not "mysterious forces residing within one. . . . . They are activities" (p. 141). Furthermore, one may have interests in many fields, and one may have an interest in a field in which he has little ability. Again, interests come and go. The genesis of interests and attitudes and their mutations are subjects which we must study more carefully.

As a whole, the book must be considered as a summary and evaluation of a great range of researches in many fields that bear on vocational adjustment. It is sketchy in many parts, but it should whet the appetite of the true research worker. It should be a constant guide and source of method for the level-headed school vocational counselor. It should strike dismay into the heart of the "vocational consultant" who has only "cut-and-dried" prescriptions to offer. The volume will create a demand for a number of monographs bringing together and harmonizing many researches already made in the various fields of psychology, scientific management, etc.

G. M. HOYT

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A British experiment in the teaching of reading.—Reading has proved a fruitful field for experimental investigation. A recent summary of investigations relating to reading includes references to 436 studies made either in England or in America. The experimentation has covered a wide range of problems, including analyses of the eye-movements of readers and other laboratory experiments, studies of reading through standardized tests, investigations of the curriculum content in reading, and comparisons of various methods of teaching reading.

In a recent monograph,[1] a well-known British experimenter makes a comparative analysis of the merits of various methods of teaching beginning reading in England. The author's method of experimentation is the parallel-group procedure, which for a long time has been associated with his name. This device involves the selection of parallel groups which are equal in every respect; the only variable should be the factors which the investigator wishes to compare. The observations and experiments which the monograph reports were made in English schools and extended over the period from 1905 to 1924.

The volume begins with a preliminary discussion of certain methods of teaching beginning reading: phonetic methods, among which the Dale system is popular; syllabic methods, of which Sonnenschein's is the best known; and the look-and-say methods, in which the word is sounded as a whole without analysis. The author upholds the desirability of special tests of potentiality to learn how to read if equal groups are to be formed for trying out various methods of teaching reading. Such tests, involving associated shapes and sounds, were devised and given to school children. The tests are described and the results are presented in the monograph.

The author draws a number of suggestive conclusions. A system of teaching reading which requires modifying marks in or on the letters, provided the marks do not modify the letters beyond recognition, is amply justified by results in

[1] W. H. Winch, *Teaching Beginners to Read in England: Its Methods, Results, and Psychological Bases.* Journal of Educational Research Monographs, Number 8. Bloomington, Illinois: Public School Publishing Co., 1925. Pp. 186.

learning to read; this is true whether modified print or ordinary print is read. No phonetic method in reading produces adequate correctness in spelling. English children, under English conditions of school organization, may begin reading quite profitably at an average age of five years and three months. One form of print, namely, the print from which the child is learning to read, should be taught both for reading and for writing during the first year or more; this does not mean the print script (a cross between printing and writing) taught in many infant schools. In the author's experiments a phonetic method proved superior to a look-and-say method and an alphabetic method. The most recent phonetic system, the Hayes phonoscript, proved superior to an ordinary phonetic system. Children who are taught to read from phonoscript print, which involves certain modifying marks in or on the letters, show a substantial loss in performance when ordinary print is read; the loss decreases considerably with time.

Two appendixes contain supplementary suggestions regarding the phonoscript method of teaching reading. There is no index. Certain references to the work of other English experimenters are not sufficiently specific to enable the critical reader to locate such material readily; for instance, in one case only the surname of the experimenter and the name of the journal in which his investigation was reported are given (p. 17). The volume includes eighteen tables.

Probably the average teacher will hesitate to read in its entirety an experimental monograph of this type; too many members of the teaching profession have a penchant for predigested reading material. The administrator, the investigator, the student of education, and the supervisor of reading will find the study worth careful reading. In addition to the results, methods of experimentation are indicated. Doubtless, the conclusions reached should be applicable in large part to school situations in America.

CARTER V. GOOD

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Minimals in composition.—A few years ago Dean E. A. Cross, of the Colorado State Teachers College, produced an elementary text called, *The Little Grammar*, which was a satisfaction to all who believed that only a small amount of formal grammar need be taught in the junior high school. A companion book,[1] also prepared primarily for junior high school pupils, has just appeared. The major principle of teaching exemplified is that in the seventh grade a vigorous attack should be made on the common errors made by children in speaking and in writing. This is right so far as it goes, but no teaching based merely on attacking errors is satisfactory. Children grow in powers of expression not primarily by correcting their mistakes but by capitalizing their successes. Moreover, the reviewer does not agree with Professor Cross's philosophy of junior high school English, which would concentrate the teaching of formal grammar in one year, preferably the eighth grade, and would teach literature two days a

[1] E. A. Cross, *The Little Book of English Composition*. Boston: Little, Brown & Co., 1926. Pp. x+176.

week and composition and language three days a week. Such a hopeless hodge-podge of English activities is directly contradictory to the "block system" of English curriculum-building now being tried in Rochester, New York, and elsewhere.

The Little Book of English Composition is a wholly admirable drill book for seventh-grade pupils. It looks upon composition as a process of manipulating accurately the details of language and will therefore please the majority of English teachers. It quite ignores the gradually growing conception that English composition is training primarily in *ideas* and in the efficient handling of ideas—that English composition is the principal secondary-school training ground in thinking.

R. L. LYMAN

A two-book series of mathematics texts for junior high school pupils.—There are now twelve series of mathematics texts for the junior high school. Most of them bear the title, *Junior High School Mathematics*, but the latest series appears as *Cumulative Mathematics*.[1] There is great variety of content and arrangement in the various series. Some depart but very little from the traditional content and organization for the three grades, while others depart radically. The author of this series believes in little departure from the traditional.

The book for the seventh grade opens with an exercise in following directions, which leads to an exercise on word problems. The usual presentation of numeration and notation and a review of the fundamentals occupy the next thirty pages, except for four pages given to the study of graphs. There is considerable emphasis on the formal definition of such terms as "subtraction," "the minus sign," "minuend," "subtrahend," "difference," and "remainder." Other topics emphasized are common and decimal fractions, percentage, profit and loss, discount, commission, interest, banking, sending money, and problems in everyday life. This customary content is supplemented by thirteen pages devoted to the equation method of solving problems and by six pages devoted to indirect problems. There are five groups of mastery tests and two cumulative reviews. The final fifteen pages are given to contests arranged to "furnish further drill on the four fundamental operations."

The first part of the book for the eighth grade is devoted to the traditional work in mensuration with some development of intuitive space relations. The following topics are then treated: taxes, insurance, business development, and the fundamental operations with literal numbers. These topics are followed by a review and twenty-three pages of contests. The last thirty pages form a "supplement," containing problems in practical applications of measurements and the systems of weights and measures. There are four groups of mastery tests but no cumulative reviews, and graphs are not treated.

The special features of the books are the mastery tests, the cumulative re-

[1] D. W. Werremeyer, *Cumulative Mathematics:* Seventh Grade, pp. x+234; Eighth Grade, pp. xii+222. New York: Harcourt, Brace & Co., 1925.

views in the seventh-grade book, and the contests. Much stress is placed on knowing "how to do things." The cumulative idea does not seem to stand out as one is led to expect from the title of the series. The books are so arranged that classes differing in ability may use them, the supplementary material being given to the rapid groups. There is a lack of illustrative material.

C. F. HUMPHREY

The statistics of standardized tests.—In a recent pamphlet[1] L. C. Pressey and S. L. Pressey have described in very simple terms how to make a frequency distribution, how to find the median, and how to make and interpret test profiles. The material is divided into ten short lessons with accompanying exercises. The authors state that the booklet should be mastered in about fifteen hours.

The teacher who needs a very simple introduction to the statistics of tests will probably find the manual of value. The same material, however, may be found in most texts on standardized tests.

KARL J. HOLZINGER

Reading material for the elementary grades.—Twelve books have recently been added to the reading literature of the elementary grades. Of these, two are extensions of well-known series of readers; six are easy supplementary books for the primary grades; three contain somewhat longer and more difficult selections appropriate for the intermediate and upper grades; and one is a volume of Bible stories and selections.

Of the two books which belong to series of readers, one[2] is for children of the second grade. If used in connection with the series to which it belongs, it introduces only 161 new words. In variety and content the stories are similar to those in the other readers by the same authors. One feature of the book is the provision of five silent-reading selections, one for each section of the book.

A second book,[3] which belongs to the Lippincott Silent Reading Series, is for the beginning class in reading. This book makes use of the principles of teaching silent reading which the author developed several years ago in her book dealing with that subject. The selections included are planned to develop the child's ability to comprehend, to remember, to organize, and to locate material for his use. Ample means of checking the child's reading are provided. The book is adequately illustrated, and the content is based on worth-while experiences.

[1] Luella Cole Pressey and Sidney Leavitt Pressey, *Methods of Handling Test Scores*. Yonkers-on-Hudson, New York: World Book Co., 1926. Pp. iv+60.

[2] William H. Elson and Lura E. Runkel, *Child-Library Readers*, Book Two. Chicago: Scott, Foresman & Co., 1925. Pp. 240. $0.68.

[3] Emma Watkins, *Lippincott's Silent Reading for Beginners*. Philadelphia: J. B. Lippincott Co., 1925. Pp. 106.

An unusual type of book[1] for children in the primary grades has been prepared by a committee of teachers in the Minneapolis schools. The materials were developed especially for this book and therefore do not duplicate selections in other books. In general, the selections are short, but the book as a whole contains more material than do many books for the primary grades. The subject matter is drawn from the child's everyday world and covers a great variety of topics. The book is printed in red ink and is illustrated by reproductions of children's drawings. It will be useful for supplementary exercises, but the material is broken up into such short and diversified units that it is not suitable for the development of the basic habits of dealing with the longer selections which the school will soon present to the child.

Three of the books are similar in that they present an interesting body of simple stories, in each case grouped around a single central idea. In one case[2] the book is written as a fox's diary. Around this connective theme is grouped a series of very interesting animal stories. The language is simple, and the illustrations are attractive. Another[3] of these books presents a series of animal stories organized around a group of forest playmates. The stories will be interesting to children for both their content and their style. However, children mature enough to read this book should be given material written in paragraph form rather than in short, broken lines, such as are used in a primer. The third book[4] in this group contains a series of stories about personified kitchen utensils. The plan is justified by the author on the ground that both city and country children are familiar with objects to be found in the kitchen and therefore will have a common interest in the stories. The plan is carried out in a clever manner, the stories being written in a humorous style.

The next two books to be mentioned are suitable for the upper primary grades. One[5] of these consists of a collection of Indian tales, which the author has gathered through direct contact with various Indian tribes. The book gives a great deal of information about the habits, superstitions, and modes of thought of these people. The usual interest of the Indian story is present. The other[6] is a book of fairy plays to be read and acted by children. The book contains six

[1] Elizabeth Hall, Blanche A. Allen, Jean Baillie, Clara S. Crockett, and Gertrude O. Terrill, *The Children's Own Book*. Chicago: Benj. H. Sanborn & Co., 1925. Pp. x+134.

[2] Ruth Miller Hilkene and Marie Gugle, *Willie Fox's Diary*. Boston: Ginn & Co., 1925. Pp. 126. $0.72.

[3] Mary Frances Blaisdell, *Pine Tree Playmates*. Chicago: Benj. H. Sanborn & Co., 1925. Pp. 126.

[4] James Woodward Sherman, *Out in the Kitchen*. Boston: Little, Brown & Co., 1925. Pp. x+134. $0.70.

[5] Florence Claudine Coolidge, *Little Ugly Face and Other Indian Tales*. New York: Macmillan Co., 1925. Pp. vi+182.

[6] Katharine Duncan Morse, *Goldtree and Silvertree*. New York: Macmillan Co., 1925. Pp. viii+160.

simple plays, which will make a strong interest appeal to pupils in the third and fourth grades and which may be used to vary the class work in reading.

Two[1] of the books which are chiefly for children of the intermediate grades contain elementary stories of great men of early history. These stories stimulate hero worship on the part of the child and are presented in part for their moral value. They may be used to introduce the pupil to the more complete stories of the same characters which will appear in the upper grades. The author makes no pretense of limiting herself to facts, drawing upon both poet and historian for her material.

Historical material of quite a different order is contained in a slightly abridged edition of Scott's account of the history of Scotland.[2] This is a book which children in the intermediate or upper grades should know, and the present edition will be attractive to them. The book is in Scott's own language, with the omission of certain stories of the cruelties of the times, which the editor thought it best to eliminate. The present form is a revision of the earlier edition, which was first published in 1885.

The last book to be mentioned is a collection of Bible stories and selections.[3] This volume contains seventy-two pages of stories told in simple language for the small child and approximately four hundred pages of Bible selections taken directly from the *American Standard Edition of the Revised Bible.* The selections given have been chosen from those which are within the range of the child's understanding. Footnotes explain difficult words and phrases. The book is attractively illustrated and is one of the better books of its class.

Supplementary texts in American history.—The idea that worth-while work in history in the junior high school can be done without suitable supplementary material is slowly passing. A library-laboratory is gradually finding a place in well-equipped junior high schools. Material to fill the shelves of this library-laboratory is already abundant, and more is appearing. In 1924 Books One and Two of *Supplementary Studies in American History* appeared, and in 1925 two books[4] of a similar nature were put on the market by the same publishers. These four volumes could be used by the same class, inasmuch as they supplement the traditional text with materials which are sufficiently different to avoid repetition.

[1] Eleanor Farjeon, *Mighty Men:* From Achilles to Julius Caesar, pp. viii+98, $1.00; From Beowulf to William the Conqueror, pp. 112, $1.00. New York: D. Appleton & Co., 1925.

[2] Walter Scott, *Tales of a Grandfather.* Edited by Edwin Ginn. Boston: Ginn & Co., 1925 [revised]. Pp. viii+352. $0.72.

[3] *The Young Folks Bible.* Edited by Jennie Ellis Burdick. New York: University Society, Inc., 1925. Pp. viii+470+xxii. $3.50.

[4] *From Columbus to Lincoln,* pp. x+262. *From Lincoln to Coolidge,* pp. vi+358. Compiled by Alfred E. Logie. Chicago: Lyons & Carnahan, 1925.

From Columbus to Lincoln and *From Lincoln to Coolidge* are made up of selections from letters and historical accounts written by people of note who lived at the time of the particular events. It is Mr. Logie's idea that in reading these selections children will gain mental pictures which will serve as an essential apperceptive mass for the interpretation of historical data. He also believes that the word "read" should be substituted for the word "study" in the directions given to children in the upper elementary grades in connection with their work in history. However, before such a substitution can be made, suitable material to read will have to be placed in the hands of the children. The 153 selections included in the two books are expected to furnish the necessary suitable reading material for those who wish to emphasize *reading* rather than *studying* in history.

In most cases the selections chosen by Mr. Logie are short, vivid, clear, and complete for the purpose for which they are intended. They are arranged in chronological order, and each one is introduced with an appropriate background. Because of their vividness, the selections are certain to appeal to boys and girls in the upper elementary grades and to leave strong impressions on their minds. All teachers of history in the grades below the high school will welcome Mr. Logie's interesting source material in United States history. When properly used, this material will do much to strengthen the intellectual and emotional impressions of adolescent boys and girls.

R. M. TRYON

Nature-study texts for the elementary school.—Although the elementary-school course seldom includes a large number of science subjects, it is important that elementary science material be made familiar to children. One of the most convenient and efficient methods of doing this is to provide suitable science readers covering the various topics of interest to children. A series of three books[1] on birds, animals, and insects which serve this purpose has been prepared by William Atherton DuPuy.

The method by which these books were prepared is interesting. The author is not a scientist but a trained writer. He carefully gathered the facts and presented them in a style adapted to children in the upper elementary grades. He then secured the criticisms of experts in the various fields in which he worked, thus assuring the scientific accuracy of his material.

The three books provide a wide range of useful and interesting information. Each of the chapters is followed by a series of questions, most of which may be answered from the material presented. These questions furnish a good basis for informal discussion in class. An outstanding characteristic of the books is the manner in which the author has translated technical, scientific material into interesting stories adapted to children.

[1] William Atherton DuPuy, *Our Bird Friends and Foes*, pp. xx+320; *Our Animal Friends and Foes*, pp. xviii+274; *Our Insect Friends and Foes*, pp. xii+276. Philadelphia: John C. Winston Co., 1925.

A science reader[1] which covers the subject of plants has been prepared by Bertha Morris Parker and Henry Chandler Cowles. The material in the book was carefully tested with elementary-school children before it was published. It is therefore known to be well adapted to their interests from the standpoint of both style and content. The purpose of the authors is "to give to children, in a vocabulary well within their range and in a style in which accuracy is not sacrificed to gain vividness, those fundamental ideas about plant life which are interesting to, and easily comprehended by, children of the upper elementary-school level" (p. iii). The book arouses the curiosity of the child by beginning with an interesting story of insect-eating plants. It not only provides interesting scientific facts about plants but also gives an insight into some of the basic ideas of botany, as, for example, the idea of plant succession and the idea of adaptation to environment. The book is abundantly illustrated. It will be found useful either as a supplementary reader in a nature-study class or as a science reader for the general reading period.

Textbooks in health education.—Teachers of health education maintain that their chief objective is the setting up of desirable health habits rather than the acquisition of information about the body and its functioning. In order to meet this objective, the school has changed its practice and, instead of offering courses in pure physiology, now offers courses which stress primarily the establishment of health habits. Many textbook writers have found it difficult to break away from physiology and to discuss the everyday problems of health. Among those texts which have been most successful in emphasizing habit-building is a series[2] by Burkard, Chambers, and Maroney.

Book One is devoted entirely to habit-building. The seventeen chapters cover a wide range of topics, including the care of the body and of its various parts; proper habits relating to clothing, cleanliness, food, and safety; and proper mental habits.

The book is excellently organized for teaching purposes. The topical headings, the special catch phrases, the exercises to be worked out by the child, and the review outlines are all conducive to effective teaching. The use made of illustrations is to be especially commended. Accompanying each picture are an italicized caption and pertinent information or questions which increase the value of the picture by stimulating the child to think about the health problem portrayed.

Book Two places greater emphasis on the subjects of physiology and hygiene.

[1] Bertha Morris Parker and Henry Chandler Cowles, *The Book of Plants*. Boston: Houghton Mifflin Co., 1925. Pp. vi+252. $0.88.

[2] William E. Burkard, Raymond L. Chambers, and Frederick W. Maroney, Health, Happiness, Success Series: Book One, *Health Habits by Practice*, pp. 430; Book Two, *Health Habits: Physiology and Hygiene*, pp. vi+432. Chicago: Lyons & Carnahan, 1925.

It is, however, organized in the same effective fashion, and it is concerned not with mastering physiology and hygiene but with providing an application of these subjects in the activities of the child. The books deserve careful examination by teachers of health in elementary schools.

Another book[1] which deals with health and safety has been written by Walter F. Cobb. This book is to be used as a supplementary health reader rather than as a basic text. It consists of a series of interesting and humorous stories which emphasize proper habits of health and safety. It is intended for children in the intermediate and upper grades. The book provides interesting supplementary reading for the class in health education, and the abundant use of blackboard cartoons adds to its attractiveness.

A history text for the intermediate grades.—Systematic work in history is more and more finding a place in each of the intermediate grades. In its epoch-making report in 1909 the Committee of Eight of the American Historical Association marked out definite boundaries for history in Grades IV, V, and VI. The work recommended by the committee for the sixth grade was introduced into the schools on a large scale before the introduction of the work suggested for the other intermediate grades. Gradually, however, as books for Grades IV and V written to conform to the suggestions of the Committee of Eight began to appear, history as a subject of study was introduced into these grades. During the past decade many good textbooks in history for the fourth and fifth grades have appeared. A recent addition[2] to the already somewhat long list indicates that the high standard set by some of the early publications is still maintained if not surpassed.

The content of the book is suggested in its title. After a brief introduction, "Asleep on the Dock," one finds chapters devoted to Columbus, John Cabot, Vespucius and Magellan, Balboa, Ponce de León and De Soto, Drake, Raleigh and Gilbert, John Smith, Pilgrim Fathers, Miles Standish, John Winthrop, John Eliot, King Philip, Peter Stuyvesant, William Penn, James Oglethorpe, Champlain, Joliet and Marquette, La Salle, George Washington, and Benjamin Franklin. As the authors remark in their brief summary at the end of the book, their "moving picture" begins with Columbus and ends with Benjamin Franklin. They do not say how many reels comprise the entire picture, but the chapter divisions indicate that there are about twenty-five, one chapter to a story being the general rule.

All phases of the book are excellent. The language is simple, concrete, and well graded; the stories have continuity and hold the attention of the reader

[1] Walter F. Cobb, *Chalk Talks on Health and Safety*. New York: Macmillan Co., 1925. Pp. vi+244.

[2] James A. Woodburn and Thomas F. Moran, *Finders and Founders of the New World*. New York: Longmans, Green & Co., 1925. Pp. iv+266. $0.88.

from beginning to end; the illustrations are good from every standpoint; the teaching aids at the end of each chapter rise much above rote memory exercises; and the few maps here and there are well selected and should prove useful. The Pronouncing List at the end of each chapter will help those who know the use of diacritical marks; in the case of those who do not, the lists may be useful in calling attention to a serious handicap in their training.

As a text in the field which it covers, the book has few equals and probably no superiors. Those looking for a book for the fourth grade which deals with the exploration and early settlement of the New World should see this book before making their selection.

R. M. TYRON

CURRENT PUBLICATIONS RECEIVED

GENERAL EDUCATIONAL METHOD, HISTORY, THEORY, AND PRACTICE

BORAAS, JULIUS, and SELKE, GEORGE A. *Rural School Administration and Supervision.* Boston: D. C. Heath & Co., 1926. Pp. xii+260.

COUNTS, GEORGE S. *The Senior High School Curriculum.* Supplementary Educational Monographs, No. 29. Chicago: Department of Education, University of Chicago, 1926. Pp. xii+160. $1.00.

DAILY, BENJAMIN W. *The Ability of High School Pupils to Select Essential Data in Solving Problems.* Teachers College Contributions to Education, No. 190. New York: Teachers College, Columbia University, 1925. Pp. viii+104.

EDGERTON, ALANSON H. *Vocational Guidance and Counseling.* New York: Macmillan Co., 1926. Pp. xviii+214.

FINDLAY, J. J. *The Foundations of Education,* Volume One. New York: Henry Holt & Co., 1925. Pp. xii+346. $2.50.

FURFEY, PAUL HANLY. *The Gang Age.* New York: Macmillan Co., 1926. Pp. xii+190. $2.00.

GOOD, ALVIN. *Sociology and Education.* New York: Harper & Brothers, 1926. Pp. xxviii+590. $3.00.

HECK, ARCH O. *A Study of Child-Accounting Records.* Bureau of Educational Research Monographs, Number 2. Ohio State University Studies, Volume II, Number 9. Columbus, Ohio: Ohio State University, 1925. Pp. xvi+246. $1.50.

INSKEEP, ANNIE DOLMAN. *Teaching Dull and Retarded Children.* New York: Macmillan Co., 1926. Pp. xx+456.

JUDD, CHARLES HUBBARD. *The Psychology of Social Institutions.* New York: Macmillan Co., 1926. Pp. x+346.

Junior High School Practices. Edited by R. L. Lyman and Philip W. L. Cox. Chicago: Laidlaw Brothers, 1925. Pp. 216.

KOOS, LEONARD V. *Trends in American Secondary Education.* The Inglis Lec-

ture, 1925. Cambridge, Massachusetts: Harvard University Press, 1926. Pp. 56. $1.00.

LOWERY, MILLARD L. *Certification of High School Teachers.* Philadelphia: University of Pennsylvania. Pp. 72. $1.25.

LYONS, FRANCES WARNER. *The Educational Value of Chemistry.* Philadelphia: University of Pennsylvania, 1925. Pp. 118.

MORRISON, HENRY C. *The Practice of Teaching in the Secondary School.* Chicago: University of Chicago Press, 1926. Pp. viii+662. $4.00.

MOSHER, RAYMOND M. *A Study of the Group Method of Measurement of Sight-Singing.* Teachers College Contributions to Education, No. 194. New York: Teachers College, Columbia University, 1925. Pp. vi+76.

MUMFORD, EDITH E. READ. *The Dawn of Character in the Mind of the Child.* New York: Longmans, Green & Co., 1925 [revised]. Pp. xvi+242. $1.75.

NEWCOMB, RALPH S. *Modern Methods of Teaching Arithmetic.* Boston: Houghton Mifflin Co., 1926. Pp. xvi+354. $2.00.

PAYNE, ARTHUR F. *Methods of Teaching Industrial Subjects.* New York: McGraw-Hill Book Co., Inc., 1926. Pp. xx+294. $3.00.

Some Tendencies in Health Education. New York: American Child Health Association (370 Seventh Avenue), 1926. Pp. 112. $0.50.

STRAYER, GEORGE D., ENGELHARDT, N. L., and OTHERS. *Problems in Educational Administration.* New York: Bureau of Publications, Teachers College, Columbia University, 1925. Pp. xviii+756.

BOOKS PRIMARILY FOR ELEMENTARY-SCHOOL TEACHERS AND PUPILS

BELINGER, NINA JOY, and MACKINNON, BELLE A. *The Word Builder, with a Basal Vocabulary for Elementary Grades.* New York: Charles Scribner's Sons, 1926. Pp. viii+152.

BRESLICH, ERNST R. *Junior Mathematics,* Book Three. New York: Macmillan Co., 1926. Pp. viii+254.

BRYANT, FREDERICK J. *Furniture Projects.* Peoria, Illinois: Manual Arts Press, 1925. Pp. 48. $0.56.

DENNEY, JOSEPH VILLIERS, SKINNER, ELEANOR L., and SKINNER, ADA M. *Our English:* Book One, pp. xviii+298; Book Two, pp. viii+310; Book Three, pp. viii+438. New York: Charles Scribner's Sons, 1926.

KNIGHT, F. B., STUDEBAKER, J. W., and RUCH, G. M. *Standard Service Arithmetics,* Book Two. Chicago: Scott, Foresman & Co., 1926. Pp. xvi+548.

MCDADE, JAMES E. Individual Number Drills. Chicago: Plymouth Press.

MADDOX, RUFUS S., and PARKINS, ALMON E. *Our Trees and How They Serve Us.* New York: Charles Scribner's Sons, 1925. Pp. vi+180.

MOWAT, OLIVE DAY. *A Synopsis of English Sounds.* New York: Macmillan Co., 1926. Pp. xii+102.

Readings in the Story of Human Progress. Edited by Leon C. Marshall. New York: Macmillan Co., 1926. Pp. xii+494.

SHIPHERD, H. ROBINSON. *The Fine Art of Writing for Those Who Teach It.* New York: Macmillan Co., 1926. Pp. xiv+358

SPRIGGS, LESLIE V. *American History Note Book:* Number One, pp. 96, $0.60; Number Two, pp. 128, $0.64. Chicago: Hall & McCreary Co., 1925.

STONE, JOHN C. *The New Mathematics,* Book One. Chicago: Benj. H. Sanborn & Co., 1926. Pp. xii+314. $0.96.

SULLIVAN, M. E., and COX, PHILENA MORRIS. *The Beacon Gate to Reading.* Boston: Ginn & Co., 1926. Pp. vi+138.

PUBLICATIONS OF THE UNITED STATES BUREAU OF EDUCATION AND OTHER MATERIAL IN PAMPHLET FORM

Annual Report of the General Education Board, 1924–1925. New York: General Education Board, 1926. Pp. x+52.

Bibliography on Vocational Guidance. Bulletin No. 66. Trade and Industrial Series, No. 19. Washington: Federal Board for Vocational Education, 1925 [revised]. Pp. x+86.

BROWN, CHARLES C. *A Manual for High School Administrators.* Boulder, Colorado: University Extension Division, University of Colorado, 1925. Pp. 78.

Education in India in 1923–24. Calcutta, India: Bureau of Education, 1926. Pp. 74.

HERRIOTT, M. E. *How to Make a Course of Study in Reading.* Bureau of Educational Research Circular No. 42. University of Illinois Bulletin, Vol. XXIII, No. 18. Urbana, Illinois: University of Illinois, 1926. Pp. 38.

HERRIOTT, M. E. *Modifying Technique of Instruction for Gifted Children.* Bureau of Educational Research Circular No. 41. University of Illinois Bulletin, Vol. XXIII, No. 18. Urbana, Illinois: University of Illinois, 1926. Pp. 18.

Proceedings of the High School Conference of November 19, 20, and 21, 1925. University of Illinois Bulletin, Vol. XXIII, No. 27. Urbana, Illinois: University of Illinois, 1926. Pp. 378.

Recent issues of the Bureau of Education:

Bulletin No. 19, 1925—*Statistics of Land-Grant Colleges, Year Ended June 30, 1923.*

Bulletin No. 28, 1925—*Statistics of Teachers Colleges and Normal Schools, 1923–24.*

Bulletin No. 35, 1925—*Review of Educational Legislation, 1923–1924.*

Bulletin No. 37, 1925—*Industrial Education.*

MISCELLANEOUS PUBLICATIONS

A Book of Modern Essays. Edited by Bruce Welker McCullough and Edwin Berry Burgum. New York: Charles Scribner's Sons, 1926. Pp. x+430.

DREW, LILLIAN CURTIS. *Individual Gymnastics.* Philadelphia: Lea & Febiger, 1926. Pp. 276. $2.25.